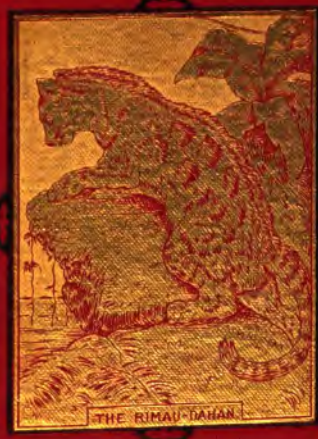
In the Tropical Regions



OR

Nature & Natural History

IN THE TORRID ZONES

MACAW (SOUTH AMERICAN) AND GREEN PARROTS.

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IN THE

TROPICAL REGIONS;

OR,

NATURE AND NATURAL HISTORY IN THE TORRID ZONE.

With Anecdotes and Stories of Adventure and Travel.

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List of Illustrations.

IN THE TROPICAL REGIONS.

CHAPTER I.

GENERAL SURVEY.

THE Torrid Zone is supposed to lie between the so-called Tropics of Cancer and Capricorn; the former in the northern, and the latter in the southern hemisphere; and each at a distance of twenty-three degrees and a half from the Equator. The region thus enclosed is also known as the Tropical World; and consists of a belt about 3260 miles in width, which surrounds the entire globe. So vast a region will necessarily offer to our observation many very different aspects, but everybody knows that it possesses one great and universal characteristic—its exceeding warmth. It rejoices in abundant sunshine, but also in abundant rain; and hence, where the soil is favourable, the vegetation is marked by an extraordinary profusion, and animal life in like manner exhibits a similar exuberance. This fact is

the more remarkable, because so large a portion of the zone is occupied by water. The Tropical World includes but comparatively inconsiderable areas of the great continents. Owing to this circumstance, however, the heat is so tempered by sea breezes, and the moisture thrown off by the ocean, as to become endurable by man: otherwise, the Tropical World would be abandoned entirely to the elephant, the tiger, the rhinoceros, and the lower forms of the animal creation.

Let us take a glance at the map, and endeavour to form some general notion of the various regions and countries contained within the Tropics. We shall then be the better prepared to enter upon an examination of their different forms of animal life.

Beginning in the west, we observe that some portions of Mexico, Central America, and nearly one half of South America, including Brazil on the east and Peru on the west, belong to the Torrid Zone. This is a region remarkable for the exuberance of its vegetation; for its mighty forests, many parts of which are as yet unexplored; and for the grandeur and richness of its scenery. It is to be noted that the quadrupeds inhabiting South America are smaller, feebler, gentler than those of the Old World: the lion is represented by the puma, the tiger by the jaguar. There is even a wide difference between the monkeys of Tropical America and those of Tropical Asia; they bear less resemblance to the human race, are gentler in disposition, and livelier in habits. All of them have prehensile tails, by which they cling to the boughs of lofty trees, and swing to and fro like children at play.

Here, too, the naturalist meets with the opossums, which resemble the marsupials, or pouched animals, of Australia; as well as the sloth, the armadillo, with its coat of mail, the burrowing chlamyphore, and the great ant-eater. There are no hares, as with us, but instead there are agoutis, whose flesh is described as good eating; and the cavies find ample sustenance in the depths of the great forests.

It has been pointed out as very remarkable, that in a country blooming with the most luxuriant vegetation not a single species should be found of what are called "hollow-horned ruminants," such as the ox, the sheep, the goat; but it is even more remarkable that the South American animals should be so inferior in size to the living quadrupeds of South Africa, which is comparatively a desert.

The forests of Tropical America swarm with birds of beautiful plumage; and their insect life is as prolific as it is diversified.

In Africa, north of the Equator, lies the dreary region of the Sahara—a wilderness of rock and sand, bare of vegetation, except in those scattered *oases*, or gardens, where the palms have sprung up around a fountain of fresh water. The camel is the animal of the Desert, and without its aid man could scarcely hope to traverse its herbless wastes. It would be abandoned to the ostrich, the hyena, and the jackal, to the hedgehog and the porcupine; while the snake and scorpion would be left to lurk among its rocks and in its hollows.

Farther south, however, in the vast country of the

Soudan, and in that wonderful lake-region of Central Africa which has been made known to us by the enterprise of Livingstone, Speke, Cameron, and Stanley, and other intrepid explorers, the fertile soil yields a rich variety of vegetation, and animal life, accordingly, will amply repay the studies of the naturalist. Lions, leopards, and panthers, with their sanguinary appetites, keep down the increase of the inferior animals. Here the huge hippopotamus wallows on the muddy banks of the great rivers, and the treacherous crocodile lies in wait for its unsuspecting prey. In the forests the chimpanzee makes its home, and the ferocious gorilla roams through the wooded solitudes. Packs of hyenas frequent the neighbourhood of the towns and villages. Herds of elephants go down at twilight to refresh themselves in the waters of the great lakes. Across the plains, often in company with the ostrich, speed the gaily-striped zebra and the more sober-coloured quagga; while, from the borders of the Great Desert in the north, to the Orange River in the south, the graceful giraffe wanders in troops of eighty or a hundred.

But Africa, whether Tropical or Temperate, is before all things the land of the antelope. They are of every size, from the pigmy, not larger than a hare, to the giant of the family, the eland, which is larger than an ox. Most species are gregarious, and the herds are too numerous to be counted. Like all animals that feed in groups, they place sentinels to give notice of the approach of a foe; and they are so inferior in strength to the carnivorous animals, that this precaution is absolutely necessary for their safety.

Our rapid flight now takes us to Hindustan and Ceylon, Siam, Cochin-China, and the Malayan Peninsula.

Of Continental Asia, only a small portion lies within the Tropics, but that portion abounds in interesting varieties of animal life. Here we find that most magnificent of the beasts of prey, the swift, courageous, and ferocious tiger. Here, too, the huge bulk of the elephant crashes through the intertangled growth of the forest. Leopards and panthers, "fairest of the spotted kind," are everywhere common; and so is the hyena,—except in the Burmese Empire, which, strange to say, has neither wolves, hyenas, jackals, nor foxes. The wild boar is a favourite object of the chase with Hindu princes and English-officers.

Many of the birds of Tropical Asia are remarkable for the beauty of their plumage. The splendid peacock, which struts so proudly on the sunny terraces of many English gardens, is a native of the woods of Hindustan and Ceylon. The magnificent polyplectron is found nowhere but in India; while the Tropical pheasants, with their attire of gold and silver, and steely-blue, and emerald-green, delight the eye by the harmony as well as the splendour of their colouring.

Coming to the great islands lying between Asia and Australia, and formerly, it may be, included in one or other of these continents,—the Eastern Archipelago,—what a boundless wealth of animal life presents itself in Java, Sumatra, Borneo, the Moluccas, and the Philippines!

We have spoken of the gorgeous plumage of the Asiatic birds; but in this respect they are rivalled, nay, surpassed,

by those of the Eastern Archipelago. These islands, indeed, have been characterized, and justly, as the abode of the most gorgeously arrayed birds in existence. Words can hardly describe the vivid colours of the orioles, or the plumed magnificence of the birds of paradise. Scarcely less worthy of notice are the pigeons,—especially the great crowned pigeon,—and the numerous parrakeets and cockatoos, which seem all to vie with one another in making a goodly show. The argus pheasant is also conspicuous for its fine feathers; while there are other birds remarkable for the curious character of their nests, such as the mound-making turkeys; or their peculiar organization, such as the cassowary,—a bird without the power of flying, but singularly fleet of foot.

The quadrupeds of the Indian Archipelago include the leopard and the black panther, the wild cat, the rhinoceros, the tapir, the Babyroussa hog, and several species of deer.

Then to Sumatra and Borneo belongs the orang-outang, or "Man of the Woods," which in some points of structure approaches very near to man; and to Sumatra and Bencoolen, the large ape called the siamang.

Generally speaking, the animals of Sumatra, Borneo, and Java show a resemblance or affinity to those of the Asiatic continent; while those of Timor, Celebes, Ceram, and Papua are clearly related to the principal forms found in Australia.

And to Australia our rapid flight now brings us.

"Its animals," says a graphic writer, "are creatures by themselves, of an entirely unusual type; few in species,

and still fewer individually, if the vast extent of country be taken into consideration; and there has not one large *animal* been discovered. In New Holland there are only fifty-three species of land quadrupeds; and there is not a single example of the ruminating or pachydermatous animals, so useful to man, among them; there are no native horses, oxen, or sheep, yet all these thrive and multiply on the grassy steppes of the country, which seem to be so well suited to them. There are none of the monkey tribe; indeed, they could not exist in a country where there is no fruit."

Our circumnavigation of the Tropical World brings us, by way of conclusion, to the beautiful island-groups of Polynesia. These, with few exceptions, lie entirely within the Tropics; but their climate is happily tempered by the ocean breezes, so that they present some of the fairest, richest, and healthiest scenery on our globe. Here flourish the cocoa-nut, the bread-fruit, and the pandanus or screw-pine; while the bountiful earth also produces, almost spontaneously, abundant crops of tapioca, arrow-root, sago, sugar, yams, batatas or sweet potatoes, taro, cotton, besides fruits and vegetables too numerous to specify. It would be difficult to overpraise the beauties of the "summer isles of Eden" which stud, like emeralds, the broad bosom of the Pacific. A cloudless sky above; hills clad in perennial verdure, and wooded valleys crowned with feathery foliage; and a blue sea around, contrasting vividly with the white coral rocks on which it pours its numerous waters.

But beautiful as are these Polynesian Islands, they are not very rich in animal life. If venomous reptiles are unknown, so, too, birds and quadrupeds are exceedingly limited in number. Of the latter, the dog and hog were the only specimens; but of late, fallow-deer, hares, and rabbits, as well as pheasants, partridges, and some song-birds, have been introduced. The surrounding seas, however, abound in fish; nor is there wanting that monster of the deep, the ferocious shark.

Here we close our general survey. We now proceed to introduce the reader to the principal animals of the regions through which we have passed so rapidly.

CHAPTER II.

THE VIRGIN FOREST: AND THE "MOTHER OF THE WATERS."

THE scene lies in South America: in the valley of that mighty river, the Amazon, which the natives who dwell on its banks, in admiration of its ever-rolling flood, have christened the "Mother of the Waters;" and in the heart of one of those trackless wildernesses which, because unexplored, are known as the Virgin Forest.

The air is close and warm, and, owing to the height of the trees, and the profusion of climbing-plants which hang from every bough, so that the sunlight cannot penetrate through the thick leafy screen, a constant gloom prevails. Even at noonday the traveller finds himself wrapped round, as it were, in a kind of green twilight. The earth is thickly covered with leaves, and dead branches lie around, with the trunks of trees which have been uprooted by the tempest or have fallen from old age. Tall tree-ferns grow freely on every side; and mosses, soft as velvet, creep along the projecting rocks, or clothe the margins of the rills and watercourses. Fruits of many kinds are scattered about; and here and there may be seen a heap of what

appears to be large empty wooden vessels,—"monkeys' drinking-cups" they are called,—the shells of the nuts of the sapucaya tree. This tree is fully one hundred and twenty feet in height. Its branches bear these huge fruits; as many as twelve to twenty nuts lying in a single pod or shell, which is pierced on the top with a circular hole, fitted with a natural lid. The monkeys have a great fancy for this fruit, and will patiently sit for hours hammering at a shell with a stone, in order to open it; and as soon as they have succeeded, the onlookers rush to the spot, to purloin as many as they can. Then the natives come upon the scene, and attack the quarrelling party with stones; a proceeding which the monkeys avenge by a volley of nuts. This is just what their assailants desiderate. They load their boats without trouble, and leave the monkeys to repent of their strife, and collect a fresh supply.

Of the various Indian tribes who inhabit the borders of the forest, or the banks of the mighty Amazon and Orinoco, little need be said. They have been brought, to a great extent, under the influence of civilization, and have lost many of their original characteristics. The Roman Catholic missionaries have introduced among them the principles of religion; but their old superstitions have not been entirely swept away, and they still believe in spirits and omens, in the efficacy of charms, and the wisdom of their soothsayers.

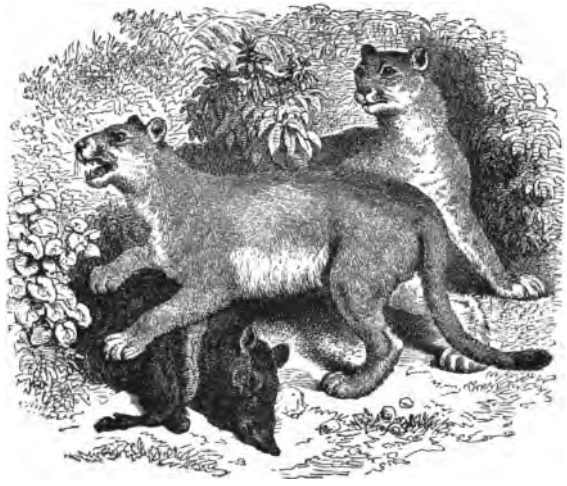
We turn, then, to the animal life of the Virgin Forest, which offers us many features of interest, and suggests many subjects for reflection.

VIRGIN FOREST OF THE AMAZON.

THE PUMA AND THE JAGUAR.

Animals are divided by naturalists into *families*, according to their various points of resemblance. One of these families is called the *Felidæ*,—from *felis*, a cat; and among the Felidæ of America we find the Puma, also known as the Lion of America, and the Jaguar, also known as the American Tiger.

The puma measures about five feet from nose to tail,



PUMAS.

is of an almost uniform reddish-brown colour, and has no mane. In his habits and disposition he resembles the panther rather than the lion, and, in fact, an overgrown cat more than either. Trees he climbs with all a cat's

dexterity, whether in chase of birds, or in search of a "point of vantage" from which he may pounce upon some passing prey. The larger quadrupeds he seldom attacks, confining himself chiefly to deer, young calves, sheep, and colts. In Chili, however, he will assail both horses and men. It is said that he always kills his victim by leaping on the shoulders, and drawing back the head with one of his paws until the neck is dislocated.

Though a swift and dexterous climber, he is often taken with the lasso of the American Gauchos; but in Chili they are more frequently driven into the trees, and there shot. He is a very cunning animal; when pursued, often doubling like a hare,—and then suddenly making a powerful spring on one side, he lurks among the brushwood until his hunters are out of sight.

The flesh of the puma is eaten, and is pronounced savoury. Darwin, when supping on one occasion at a South American table, was suddenly struck with horror at the thought that he was partaking, perhaps, of one of the favourite American dishes—namely, a half-formed calf, long before its proper time of birth. It turned out to be a puma. The meat was very white, and in taste extremely like veal. The Gauchos differ in opinion whether the jaguar is good eating, but all agree that "the cat" is excellent.

From Paraguay almost to the Isthmus of Darien, in the forest-recesses and in the broad grassy pampas, the jaguar reigns; a fierce, powerful, bloodthirsty animal, not inaptly designated "the scourge of South America." Although somewhat larger and more thick-set, he bears considerable

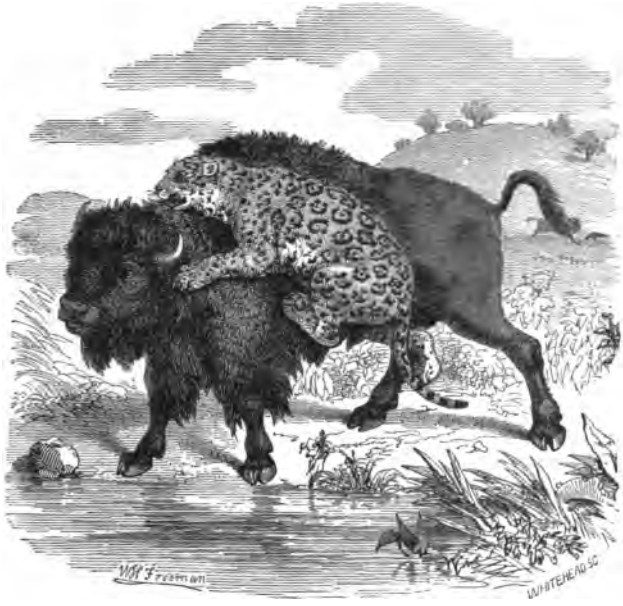
resemblance to the tiger, with which he is sometimes confounded.

In the deep solitude of the Virgin Forest the jaguar may sometimes be seen outstretched, silent and immovable on one of the lower branches of a venerable tree,—waiting and watching for his prey.

And, see! a deer comes trotting through the brushwood, in haste to quench his thirst in the flowing stream. His rapid course brings him near the spot where lurks his deadly foe. The jaguar's eyes dilate; they burn like red-hot coals; his ears are laid back; he crouches closer and closer upon the supporting branch. Nearer and nearer comes the unsuspecting deer; and every limb of his enemy quivers with excitement, every muscle is stiffened preparatory to the fatal spring. At last, with a fierce exultant yell he pounces upon his prey, seizes him by the back of the neck, breaks his spine at a single crashing blow, so that he falls, dead, upon the earth. Then he proceeds to drink a deep draught of the victim's blood, after which he drags the body away to some sequestered lair, to devour it at his leisure.

Like the tiger, the jaguar loves the shade of hot swampy jungles, and the neighbourhood of rivers and lakes. He generally preys on animals of domestic origin which have grown wild in the plains and valleys; but he will also attack the buffalo. The havoc he commits among the horses of the pampas is surprising to those who are unacquainted with his fierceness and strength. Azara, the traveller, caused the body of a horse which had been recently killed by a jaguar to be dragged within musket-

shot of a tree, in the leafy shade of which he intended to pass the night, anticipating that the jaguar would return for his prey under cover of the darkness. But while the traveller was making his preparations, behold! the animal



JAGUAR ATTACKING A BUFFALO.

swam across a deep broad river, and having seized the carcass with his teeth, drew it some sixty paces to the river, which he re-crossed with his booty, and then escaped into a neighbouring wood. All this took place in sight of a person whom Azara had stationed on the watch.

The jaguar does not generally attack man, but, like the

tiger, after having once tasted human flesh he grows ravenous. Some years ago, a large jaguar found his way into a church in Santa Fé. Not long afterwards a corpulent priest entered, and was immediately killed by the formidable beast. A fellow-priest, wondering what had become of his coadjutor, went in quest of him, and also fell a victim. Then a third padre, utterly at a loss to account for the prolonged absence of his brethren, entered the church, and would certainly have furnished the "man-eater" with an additional repast, had he not escaped by dodging from pillar to pillar until his cries brought help.

When Mr. Darwin was hunting on the banks of the Uruguay, three trees were pointed out to him as used by the jaguars for the purpose of sharpening their claws. Our readers will have observed the manner in which cats with outstretched limbs and extended claws will "card" the legs of chairs or posts. So do the jaguars. The bark of these trees was worn perfectly smooth in front, and on each side ran deep grooves, extending in an oblique line nearly a yard long. The marks were of different ages; and the inhabitants could always tell when a jaguar was near at hand by his recent autograph on one of these convenient memorials.

THE MONKEY TRIBE.

But we must leave the jaguar to hunt his prey, and go in search of the numerous monkeys who chatter and grin among the leafy boughs, and pelt the traveller as he passes by with leaves or fruits or nuts.

There are some notable points of difference between the apes of the Old World and those of the New. The New

World apes have all a very long, and generally a prehensile, tail. They are of a gentle and peaceful disposition, are easily tamed and domesticated, and do not grow more malicious or morose as they advance in years.

They are divided into several genera,—such as the howlers, the spider-monkeys, the sajous, the saïmris, and the nyctipitheci, or nocturnal apes.

The Howlers are so called from their habit, when assembled together in the woods, of raising a chorus of most unearthly noises. They are found in the forests of Guiana, Brazil, and Paraguay, where, at early morning and at nightfall, their loud and prolonged howls startle the unfamiliar traveller.

The deep volume of sound in the voices of these monkeys is produced by a drum-shaped expansion of the larynx; and Mr. Bates says it was curious to watch one of these animals while roaring to his heart's content, and to observe with how little muscular force he produced so great an amount of noise.

When howlers are seen in the forest, generally three or four are perched on the topmost branches of a tree. It does not appear that their ear-splitting and soul-harrowing din is occasioned by any sudden alarm,—at least, such is not the case with captive individuals. It is probable, however, that its object is to intimidate their enemies.

Did you ever see a chain of monkeys? Such a spectacle is not uncommon in the Virgin Forest; for the Spiders, so called from the length of their limbs and their sprawling gestures, are fond of linking themselves one to another, and in this way crossing the broad American rivers.

The tail of the spider-monkey is so powerful and so flexible, and grasps so tightly and clings so firmly, that it forms a kind of fifth limb, by means of which its owner suspends his body in the air, and darts from one tree to another with almost incredible agility. It more than compensates for the imperfection which is one of his character-

SPIDER-MONKEYS.

istics,—namely, that his fore paws are without thumbs. The spider-monkey feeds chiefly on insects, on molluscs, and small fish, which he catches with all the address of a

practised angler. The shells of oysters he cracks, it is said, with a stone.

On the threshold of the forest, and not in its silent depths, we meet with the Sakis, or Fox-tailed Monkeys; distinguished, as their name indicates, by their bushy tail. They are irritable animals, apt to display a savage temper on the slightest provocation, and given to the utterance of doleful cries, like the howlers, before sunrise and after sunset.

But if they are ill-natured, they are very graceful in their movements, and it is pleasant to see them climbing the trunks of trees in search of the insects and spiders which form their favourite food. They wear a coat of soft dark-brown fur; have a small round face, and black shining eyes. They can easily be tamed, and when tamed show a strong attachment to their masters. Their intelligence is considerable; and if you address them, they listen with marked attention, placing their paw upon your mouth, as if for the purpose of catching your words. They love to be carried about by the larger monkeys, from a sense of innate weakness and inability to endure fatigue; and though, at first, the animal to which one of the sakis attaches itself may seek to get rid of its burden, it soon desists from what it finds to be a fruitless effort, and in time conceives such an affection for its little friend, that if the latter has left his usual seat in search of insects, the former will give notice of his intention to quit the spot by a low warning cry.

The Indians of the forest are partial to the flesh of some species of monkeys, and hunt them as we would do game. Their weapons are very simple: a blowpipe, made of the

stalk of a bamboo, and about fifteen feet in length; and a bundle of arrows, fashioned from the leaf-stalks—hard, brittle, and sharp-pointed—of a kind of palm. These arrows they hurl through the blowpipe to a great distance, and with unerring aim; but as the wounds they inflict are very slight, they steep the points in the celebrated Wourali or Ourari poison,—the deadly juice of a plant called the *Strychnos toxifera*,—and then the lightest scratch is fatal.

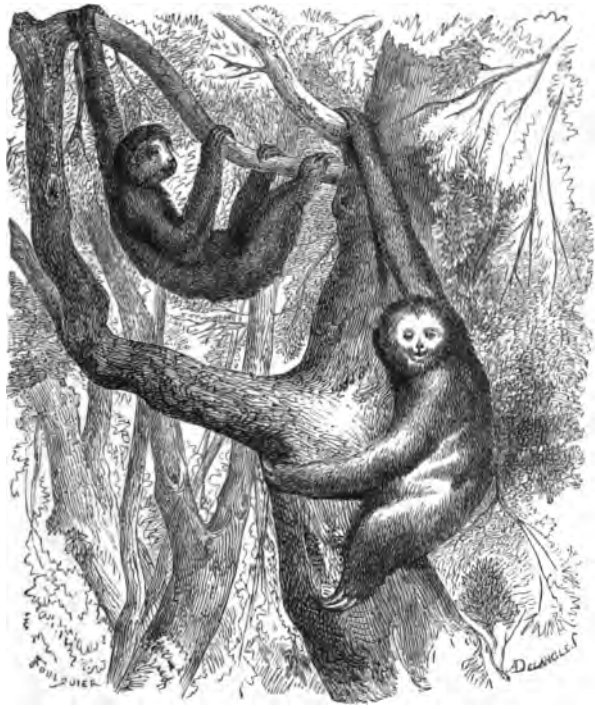
THE SLOTHS.

One of the vulgar errors in natural history which a visit to the Virgin Forest would soon put to flight, relates to the supposed laziness and awkwardness of the animals stigmatized as Sloths.

Now, there are two kinds of sloths in Tropical America, —the Unau or three-toed, and the Ai or two-toed; but neither deserves the reproach of slowness, except when, by any accident, he is seen creeping along the ground. But a fish is not more out of its element on dry land than the sloth when away from the trees among which he delights to live! He is specially formed to enjoy a sylvan life,—to roam among the thick warm foliage, and dwell "under the shade of melancholy boughs." For this purpose Nature has provided him with long and strong fore feet, and armed his slender toes with enormous claws, which can hold the rugged branch with inflexible grasp; for it must be understood that he does not live *upon*, but *under*, the bough, moving, and resting, and sleeping *suspended* to it, like the bat.

He does not suffer from want of food, for the leaves and

young shoots on which he feeds are inexhaustible in the Virgin Forest. His long arms and powerful claws enable him to defend himself against his enemies, the large tree-



UNAU AND AI SLOTHS.

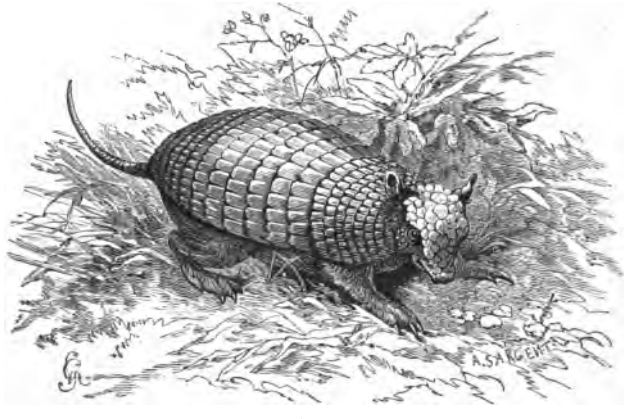
snakes; and as a further protection, the colour of his hair is so exactly like that of the moss which incrusts the trees, that the animal can hardly be distinguished from the branch to which he clings. It has been observed that he reserves

his journeyings from tree to tree for days when the wind blows,—probably because the branches are then so entangled and interwoven as to assist him in his migrations.

But now from a burrow at our feet emerges a singular creature; like a medieval knight—

"In armour sheathed from top to toe;"

with a long pointed snout, long ears, short thick limbs, and stout claws. This is the animal known as the Armadillo; or, to use his Indian name, as the Tatou. Nature



ARMADILLO.

has supplied him with a complete suit of mail: his head is protected by either an oval or a triangular plate, his shoulders and his haunches are encased in a kind of buckler; but between these solid portions intervenes a series of transverse bands or zones of shell, which adapt the coat of armour to the various postures of the body.

The armadillo is a burrowing animal. Both his long snout and his formidable claws are well adapted for digging in the soil, and he works away with such rapidity that his capture is a very difficult operation. The Indian hunters, therefore, smoke him out of his subterranean den. As soon as he finds himself in the open air, he rolls himself up in a ball, and is easily taken prisoner. To cook him, he is roasted whole in his shell, and is then served up as a delicacy of no common character.

It is to avoid his numerous enemies, we suppose, that he keeps at home during the day, and does not venture forth in search of the roots, grain, worms, and insects on which he feeds, until after sunset.

He is sometimes captured by digging; but the process, as described by Mr. Waterton, is laborious. When adopted, the first step is to examine carefully the mouth of the burrow, and thrust a short stick down it. If, on the introduction of the stick, a number of mosquitoes sally forth, the Indian hunter is satisfied that the armadillo is at home; but when there are no mosquitoes, there is no armadillo. The next step is to cut a long and slender wand, and introduce it into the hole. The hunter carefully observes the direction the stick takes, and then digs a pit in the sand to catch the end of it. This done, he thrusts it further into the burrow, digs another pit, and this process he repeats until at last he overtakes the armadillo, which has been working in the sand until spent with sheer fatigue. Mr. Waterton says that sometimes he has been three-quarters of a day in digging out one armadillo, and obliged to sink half-a-dozen pits, seven feet deep, before he

got up to it. The Indians and negroes are very partial to the flesh, but Europeans consider it strong and rank.

The Little Ant-eaters or Tamanduas are about ten inches in length, and are nocturnal in their habits. They feed on the termites which construct nests of earth, looking like ugly excrescences, on the trunks and branches of trees.

THE BATS.

Just at the same time as the tamanduas begin their hunt after insects, the Bats also venture forth from their hiding-places, and on noiseless wing glide through the gathering darkness.

The most formidable of the New World bats is the Vampire, of which such terrible stories have been told. It has a curious muscular under-lip, which it is able so to draw together as to form a kind of sucking-tube: with this, after its sharp canine teeth have pierced its victim's skin, it extracts the blood. It was wont to be said that the vampire would enter the sleeping-rooms of men, and search for the uncovered toes of a sound sleeper, knowing by its instinct whether its intended victim was completely buried in slumber. Then, poising above his feet, and fanning them with its wings so as to lull the sleeper all the more thoroughly, it would cautiously bite the exposed foot, and then suck the blood until satiated. Afterwards it would disgorge its horrid repast, and begin afresh; continuing the operation until its victim, drained of blood, fell into the sleep of death.

A terrible story, but, fortunately, an untrue one! All

that can safely be affirmed is, that the vampire *does* bite both men and cattle during the night; but then the wound is never fatal, and, indeed, causes but little inconvenience.

In their attacks on quadrupeds, these blood-drinking bats usually fix themselves on the flanks and shoulders; and the wounds they inflict would do mischief if neglected. Darwin says that it is quite common to find the bodies of the cattle which have passed the night out in the fields covered with blood from the bites of their sanguinary persecutors. He adds that one night, during his travels, he halted at Coquimbo, in Chili. One of his horses showed exceeding restlessness, and the servant who went to see what was the matter thought he saw some strange object on its withers. Putting his hand quickly forward, he caught a vampire bat. Next morning the spot where the bat had been captured was inflamed and sore, but the ill effects proved only temporary, and in three days the horse had quite recovered.

THE KINKAJOU.

While watching the wheeling movements of the bats, we become aware of the presence of a slender, long-tailed animal, taking flying leaps, like a Leotard or a Blondin, from branch to branch through the leafy shadows of the grove.

It is a Kinkajou, a creature which in size may be compared to a large cat; with a conical-pointed muzzle, long claws instead of nails, and a tail which is very flexible towards the tip, and is used to twine round branches when the animal is climbing. But its peculiar characteristic is

KINKAJOU.

its long and pliant tongue, which it is able to extend in a truly marvellous manner, insinuating it into the smallest crevices in search of insects, or into the cells of the beehive, and licking up the honeyed treasure.

The kinkajou's tongue is completely under its control, and it performs many of the functions of an elephant's trunk. Any articles of food beyond reach of its owner's lips, this dexterous instrument seizes, and draws into the capacious mouth.

A celebrated climber is the kinkajou! You

would stare to see it hanging to a branch, head downwards, by means of its hinder feet and tail, and remaining in this inverted position for a longer time than you would care to watch it. During the day it sleeps profoundly—so profoundly that it is with difficulty aroused; but when the gloaming comes on, it starts forth with renewed life, leaping from branch to branch, climbing the forest-trees with wondrous skill, and every now and then descending to drink.

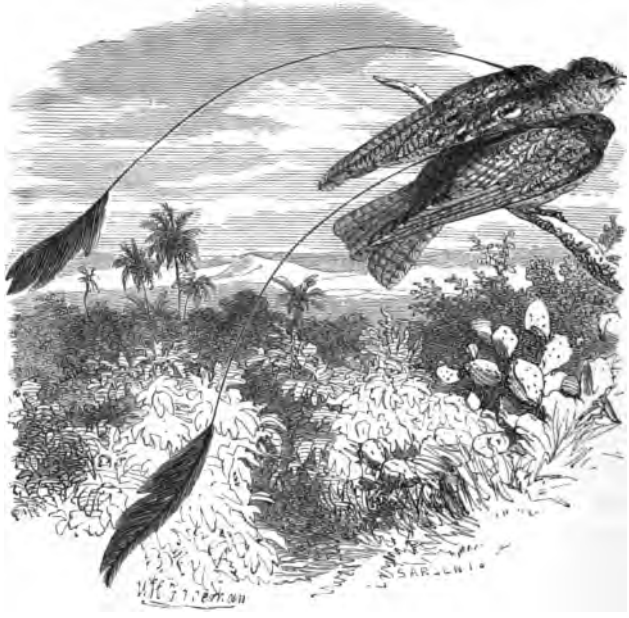
Leaving the quadrupeds, however, we will now direct the attention of the curious reader to some of the more remarkable members of the feathered race.

THE BIRDS OF THE VIRGIN FOREST.

Among these we may give a foremost place to the Goatsucker, of which there are several species. One is called the *Joao corta pao*—or "John, cut wood"—by the Brazilians, because the phrase which it is incessantly repeating seems to shape itself into these words.

In the forests of Demerara there is another, about the size of an English wood-owl, whose remarkable voice, once heard, is not easily to be forgotten. A stranger would not believe it to be the cry of a bird, but, rather, "the departing voice of a midnight-murdered victim, or the last wailing of poor Niobe for her children, before she was turned to stone." Suppose a person in the frenzy of despair beginning with a high loud note—"Ha, ha! ha, ha! ha!" each note lower and lower, till the last is scarcely audible—but pausing a moment or two between each exclamation—and you may form some idea of the

moaning of the great Demerara goat-sucker. There are other species, which articulate their notes so clearly that they positively bewilder a stranger on his arrival in their vicinity. One hovers about you, and exclaims, "Who are you? who are you?" Another perches on a branch above your head, and reproves your indolence with the volun-



AMERICAN GOAT-SUCKER.

teered advice, "Work away! work, work, work away!" And a third seems to bewail the temporary character of your visit, "Willy-come-go! Willy, Willy, Willy-come-go!"

They are solitary birds, living in pairs, sleeping during

the day, and issuing forth at night in quest of their insect food. They build no nest, but the female deposits her eggs among the underwood or beneath the broad-leaved ferns.

If the goat-suckers are found in the Old World and the New, so wide a range cannot be claimed for the Toucans. Their habitat is the Tropical American forest. During the greater part of the year they are met with in very small flocks, or flying singly, and are then very cautious and wide-awake. Sometimes as many as four or five of these birds may be seen perched, for hours together, among the topmost branches of tall trees, with one bird, higher than the rest, apparently leading off their loud, shrill, yelping chorus; but two of them are often heard "yelping" alternately, and in different keys.

TOUCAN.

From these cries, which resemble the syllables *To-cá-no*, *To-cá-no*, comes the Indian name, Toucan.

At such times, we are told, the hunter is not likely to fill his bag, for the senses of the toucans are so quickened that they descry him before he can draw near their resting-place, though he may be half-concealed by the thick underwood, some fifty yards below them. With outstretched necks they survey the ground, and at the

slightest stir among the foliage scurry away to remoter parts of the forest.

What is the use to the toucan of his enormous bill? Frequently it is seven inches long, and more than two inches wide, or nearly as large as its owner's body. You would think it must prove a burden and a discouragement to the bird; but as its substance is cellular or spongy, it is very light, and does not embarrass the toucan's nimble movements. But what is the use of it to a bird which is neither a wader nor aquatic in his habits? He does not feed on fish, but on fruits (especially bananas), reptiles, worms, insects, and small birds and their eggs. Professor Owen has suggested that the great toothed bill might be useful in holding and remasticating the toucan's food; but its interior structure is not well adapted for such a purpose, and we prefer to accept Mr. Bates's explanation. Here it is; and it affords another wonderful instance of the manner in which the Almighty Wisdom has fitted every creature for the peculiar conditions under which its existence is passed.

The toucan is a great fruit-eater. Well: flowers and fruit on the crowns of the lofty trees of the Virgin Forest grow principally towards the end of slender twigs, which are incapable of bearing any considerable weight. All animals, therefore, which feed upon fruit, or upon the insects lurking in the cups of the flowers, must necessarily have some means of reaching the ends of the stalks from a distance. Monkeys stretch forth their long arms or tails. Humming-birds possess such powerful organs of flight, that they can keep on the wing before blossoms whilst

rifling them of their sweets. But even these strong-winged creatures will, if they can get near enough, remain on their perches while hunting in the flowers for insects. The toucan, however, has feeble wings, and is of a slow temperament. Its mode of obtaining food is peculiar: it plants itself on low branches in the forest-shades, eyes the fruits on the surrounding trees, and when it has measured the distance, and apparently chosen the point of attack, away it darts, seizes a mouthful, and returns to its resting-place. Now, then, we see the object of the enormous bill. It enables the toucan to reach and devour fruit while sitting, and thus counterbalances the disadvantages it would otherwise suffer from its heavy body and gluttonous appetite.

If the toucan attract our attention by his immense bill, the Trogons fascinate our gaze by their brilliancy of colour. They are, it is said, the most sedentary members of the bird world, and hence their feet seem to be constructed for the sole purpose of enabling their owner to sit still. They do not differ greatly in size from our thrushes, but, owing to their loose plumage and spreading tails, they look larger than they really are. Fine feathers make fine birds, and our trogons display backs of resplendent azure or emerald, varied by shades of pink, yellow, or red. They live in the holes of decayed trees, or in the cavities made by ants; and feed upon caterpillars, worms, insects, berries, fruit. Their cry is exceedingly plaintive, and sounds like the word *curugua;* their flight is swift and undulatory, but all through the day they remain perched upon the

green boughs, screening themselves effectually from the sun's hot beams.

There are trogons in India, the Eastern Archipelago, and South Africa; but they are most numerous and most magnificent in the Amazonian forests. There you may see the gorgeous caluri; and, above all, the stately peacock trogon, which seems as conscious of its beauty as even the proud bird of Juno, after which it has been named. Never Solomon in all his glory was arrayed like one of these.

THE PARROTS.

Among the birds of the Virgin Forest the Parrots claim attention, from the manner in which they enliven its solitudes by their

incessant chatter, and from the general gaiety of their plumage and liveliness of their manners. If they do not make "a sunshine in the shady place," they certainly do something towards rendering a dreary one more cheerful; and the traveller is often well pleased to hear their loud discordant prattle around him. They are found throughout the length and breadth of the South American forests, but prefer the neighbourhood of the streams and rivers. When the day flushes warm and red in the eastern sky, they quit their resting-places among the green boughs, and in vast flocks assemble on the dead and decaying trees, where they carefully free their gay feathers from the dews of night. Then dividing into small companies, they hasten to obtain their morning meal; and if an orange plantation be at hand, their visits are speedily known by the havoc they commit.

Their hunger satisfied, away they go, with loud continual chatter, to bathe in the cool waters of the stream; and merrily they disport themselves, until the gathering heat of noontide forces them to seek the green woodland coverts. Then for a while they are silent, though not somnolent; for the least alarm is sufficient to arouse them, and send them off to some other retreat.

Towards evening they proceed in quest of their second supply of food; after which they reassemble with as much din and parade as a regiment of soldiers, and return to the river to enjoy a second ablution. They seem as fond of bathing as an Oriental. A second time they preen their wings, taking advantage of the last rays of the sun; and then each retires to its own roosting-place.

The Amazonian parrot is much sought after by the Indian hunters, because it is easily domesticated and readily learns to speak. They take a young bird from its nest, pluck the feathers from back and shoulders, and apply to the parts thus exposed the blood of a small species of frog. Instead of being green, the natural colour of the bird's plumage, the new feathers are yellow, or of a bright red. But many birds are killed by this cruel operation; and the metamorphosed parrots, being exceedingly rare, fetch very high prices. Moreover, they are always silent, melancholy, and feeble after they have undergone the artificial change.

It has been pointed out that in many respects the parrot resembles the monkey, and one obvious point of resemblance between them is their mimetic or imitative talent; but while the latter endeavours to copy the gestures and actions of man, the former contents itself with an effort to imitate his voice and repeat his words—in which effort it is assisted by the peculiar formation of the windpipe and the exceeding mobility of the tongue and upper mandible.

The parrots are social birds, and gladly seek each other's society. They deserve a high character, also, for conjugal affection. The latter virtue receives its highest illustration in the passerine parrot of Brazil and the love-bird of Guinea. The husband and wife are never seen alone. They delight to imitate each other's actions; they bathe together, feed together, play together, sleep together, and it might almost be said they die together, for when one perishes the other does not long survive. A gentleman

who had lost one member of a couple of these affectionate creatures, attempted to save the other by hanging up a looking-glass in its cage. Great at first was the bird's delight, as it fancied that the image in the mirror was its beloved mate; but soon discovering the deception, it pined away and died.

The Aras, or Macaws, are far inferior to the parrots in imitative ability, but altogether surpass them in size and in gorgeousness of attire. Their natural cries are harsh, piercing, unmelodious, and the few words they contrive to learn are always uttered in a disagreeable tone.

Superior in size and beauty, as Waterton says, to every parrot of South America, the ara compels you to withdraw your gaze from the rest of animated nature, and to fix it upon him. He may justly be called the king of parrots, if we consider his commanding strength, the flaming scarlet of his body, the splendid combination of red and blue, green and yellow, in his wings, and the extraordinary length of his scarlet and blue tail.

And now, before we take leave of the birds of the Virgin Forest, we must introduce the reader to those "winged jewels,"

THE HUMMING-BIRDS.

It is almost impossible to do justice to the beauty and agility of these tiny creatures, which flash through the air like so many gems, or like bits of rainbow, and dazzle as much by the swiftness of their movements as by the rich variety of their colours. So rapidly do they dart to and fro that the eye can scarcely trace their course; and if

they pause before a flower, it is only for a few moments. A naturalist says of them that they poise themselves in an unsteady manner, their wings moving with inconceivable rapidity; then they thrust their long sharp bill into the petalled chalice of the blossom, seize their insect-food, and hasten to another part of the tree. Sometimes—for they are very irascible—a couple of males will encounter each other and fight, mounting upwards in the excitement of the struggle; and then, as if moved by a sudden impulse, hastily separate, and return to their work. Now and then they are forced to rest a while; and they perch upon leafless twigs, where they may sometimes be seen busily probing, from the places where they sit, such flowers as happen to be within their reach.

They are called humming-birds from the peculiar noise produced by the rapid motion of their wings, and are peculiar to the Tropical and Temperate regions of the New World. Feathered fairies, they seem possessed by a mercurial vivacity. Motion seems their life, and rest almost impossible, except in their hours of slumber. Fairy as they are, they are animated by a dauntless courage; and it is amusing to see the ardour and resolution with which they attack the large black bees that frequent the same flowers, and possibly interfere with their food-collecting operations.

Their nests, in general, exhibit a remarkable ingenuity; and these fairy cradles are not unworthy of their tiny tenants. In form and size they differ greatly, and so they do in their localities. Some are not much larger than half a walnut-shell; others attain the magnitude of an

ordinary hen's egg. They are made of moss and lichens, and often they are decorated very fancifully with little bits of twig, or sprays, or feathers.

Here is an interesting anecdote from the pen of Lady Emmeline Stuart Wortley :—

The Jamaica humming-birds, she says, are lovely little creatures, and wonderfully tame, and fearless of the approach of man.

"One of these charming feathered jewels had built its delicate nest close to one of the walls of our garden. The mother bird allowed us to look closely at her nest, and to inspect her little nurslings, when she was flying about near, without appearing in the least disconcerted or alarmed. I never saw so tame or so bold a little pet. But she did not allow the same liberties to be taken by every one unchecked. One day, as Sir Charles was walking in the pretty path beside which the fragile nest was delicately suspended amid sheltering leaves, he paused in order to look at its Liliputian inhabitants. While thus engaged, he felt a sharp rapping on the crown of his hat, which considerably surprised him. He looked round to ascertain whence the singular and unexpected attack proceeded; but nothing was to be seen. Almost thinking he must have been mistaken, he continued his survey, when a much sharper and louder rat-tat-tat-tat-tat seemed to demand his immediate attention, and a little to jeopardize the perfect integrity and preservation of the fabric in question. Again he looked round, far from pleased with such extraordinary impertinence; when what should he see but the beautiful, delicate humming-bird, with

ruffled feathers and fiery eyes, who seemed by no means inclined to let him off without a further infliction of sharp taps and admonitory raps from her fairy beak! She looked like a little fury in miniature—a winged Xantippe. These pointed attentions apprised him that his company was not desired or acceptable."

Even when stuffed, and imprisoned in a glass case, the beauty of the colouring of these tiny creatures and the elegance of their shape compel our admiration. How much more so when they are hovering over a Tropical flower, and glistening and glittering in the rays of a Tropical sun!

Humming-birds are hunted for the sake of their feathers, which can be converted into graceful ornaments—such as ladies' collars and pendants for the ears. The Indians occasionally decorate with them the images of their favourite saints. Pictures are ingeniously made with them, and are described as being very brilliant and fancifully effective.

TURTLE, AND TURTLE-FISHING.

When weary of watching the habits and movements of the birds, the traveller in the Virgin Forest may recreate himself with the amusement of turtle-catching. A wide tract of country, covering many hundreds of miles, and lying between some of the larger tributaries of the Amazon, contains in its midst an endless number of pools and lakes, the haunt of multitudes of fishes, turtles, alligators, and water-serpents.

Betaking ourselves to one of these pools, the following

method of turtle-catching may be observed practised by the Indians :—

They construct a little stage, or platform, of poles and cross-pieces of wood, securely fastened together by lianas, on the bank of the pool, and take up their post upon it, duly armed with bow and arrow.

Here they watch for the slight movements of the turtles which indicate their presence beneath. These ripples, or tracks on the water, are called the *siriré;* and as soon as one is perceived, swift flies an arrow from the bow of the nearest hunter, never failing to pierce the shell of the submerged animal. If the turtle be at some distance, the aim must necessarily be taken at a considerable elevation; but the Indians prefer a tolerably long range, because, as the arrow then drops vertically upon the shell, it penetrates more deeply.

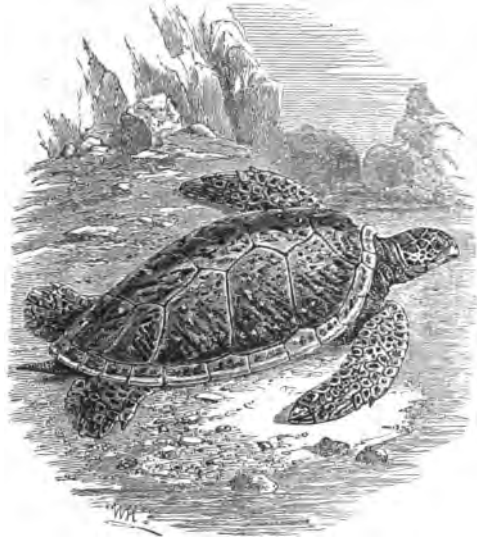
The arrow used for this purpose has a strong lancet-shaped point of steel, fitted into a peg which enters the tip of the shaft. The peg is fastened to the shaft by twine made of the fibres of pine-apple leaves; the twine measuring some thirty or forty yards in length, and winding neatly round the body of the arrow. When the lance-head enters the shell, out drops the peg, and the wounded turtle sinks with it to the bottom, leaving the shaft floating on the surface. The hunter then springs into his canoe, paddles to the place, gently hauls in the animal by the twine until it comes again to the surface, when a second arrow is discharged at it. Having then a couple of lines to hold by, he is able with ease to drag his booty to the bank.

The eggs of the turtle are much sought after for commercial reasons; and from the wholesale destruction of these which every year takes place, it is no wonder that in the waters of the Amazon marsh-turtle should be decreasing in numbers. The writer already quoted says: "At least six thousand jars, holding each three gallons of the oil, are exported annually from the Upper Amazon and the Madeira to Para, where it is used for lighting, frying fish, and other purposes. Probably, the village population consumes two thousand jars. Now, the "mashing" process is so wasteful, that it takes about 6000 eggs to make one jar of oil. Hence, the reader will see that the number of eggs destroyed amounts to 48,000,000; and as each turtle lays about 120, the yearly offspring of no fewer than 400,000 turtles must in this way be destroyed."

The marine-turtles are likewise natives of the Tropics. They are of infinitely greater commercial value than any others of the Chelonian family, one at least being held in high esteem for its shell as well as its flesh. They abound in the Brazilian seas, approaching the sandy coast at night to lay their eggs. Their path after they have landed is clearly indicated by a couple of parallel furrows ploughed in the sand by their broad flippers or feet, while the intervening space is beaten down by the pressure of the heavy body. If you follow these tracks inland for some thirty or forty yards, you will find the chelonian composedly sitting, or squatting, in a cavity formed by its frequently turning round in the yielding sand. It makes no attempt to escape; probably because it is conscious of its inability

to accomplish any rapid movements. But it manifests its indignation and alarm by inflating its short neck, and venting a kind of puff or snort.

In the cavity already described the turtle digs with her hind feet a cylindrical pit about a foot and a half deep, and in this deposits from eighty to one hundred and twenty eggs. She then covers the whole with sand, and



GREEN TURTLE.

leaving the sun to perform the process of hatching, returns to her native waters. When the young turtles emerge from their shells they are white, feeble, and about the size of frogs, and their instinct leads them directly to the sea. In favourable circumstances they develop to an immense

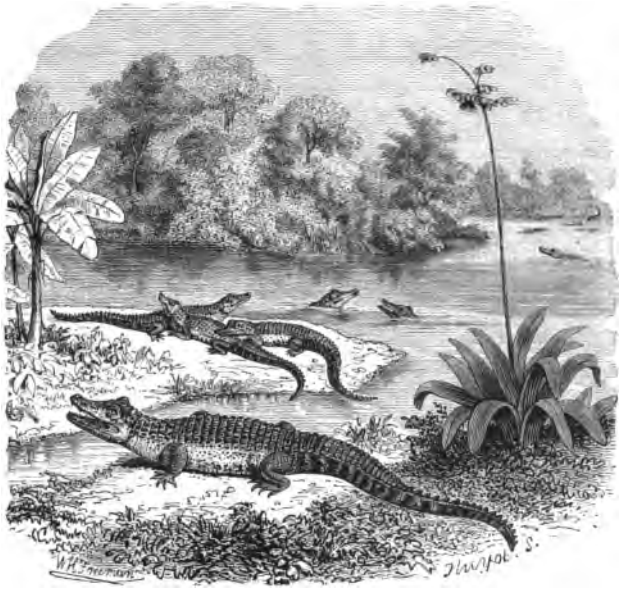
size, some of the so-called Soft Turtles weighing from fifteen to sixteen hundred pounds, while others have been known to exceed eighteen hundred.

The species most prized by European epicures is the Green Turtle. Its flesh is famous for its delicacy and the superiority of its fat, and is employed in making that dish of world-wide celebrity, turtle-soup. Though now so generally esteemed, turtle-soup is a comparatively modern invention, for the first turtle brought to London was introduced by the great naval hero, Lord Anson, in 1752.

Then there is the Hawksbill, or Imbricated Turtle, which is found in the Red Sea and Indian Ocean. It derives its name from the shape of its beak, and the peculiar overlapping arrangement of the plates of the carapace, which produces tortoise-shell of the finest quality.

In the forest-pools and rivers which we have described as the favourite haunts of turtles, some inhabitants of a less agreeable character are frequently encountered—namely, Alligators. In the waters of the Upper Amazon they exist in thousands. Like the turtle, the alligator has its annual migrations; descending to the main river in the dry season, and ascending to the inland lagoons and forest-lakes when the floods begin. If, however, the channel of communication with the parent stream should dry up, it buries itself for a while in the mud, and enjoys a protracted sleep.

The cayman, one of the Brazilian alligators, is regarded by the Indians with mixed feelings; they despise it, and yet they dread it. They despise it as an open enemy; they dread it as a treacherous one. It never attacks man



CAYMANS.

if he is prepared, nor resists him if he advances to the assault; but it will surprise him, and destroy him, if opportunity offers. A recent traveller in the Amazon valley relates the following incident:—

The river had sunk to a very low point, so that the port and bathing-place of a certain village then lay at the foot of a long sloping bank; and in the shallow, muddy water an alligator made its appearance. The villagers were compelled, therefore, to take their baths with exceeding caution; most of them being content to use a calabash, and pour the water over their bodies while standing on

the brink. Just at this time a large trading-canoe arrived, and the Indian crew, as usual, spent the first day or two after their arrival in drunken festivity. One of the men, during the noontide heats, took it into his bemused and bemuddled head, when nearly all his comrades were indulging in their siesta, to go down alone to bathe. As he went, the village magistrate, a feeble old man, who was lying in his hammock in the open veranda of his house, overlooking the bank, shouted to him to beware of the alligator. Before he could repeat the caution, the intoxicated Indian stumbled, and a pair of huge jaws, suddenly rising above the surface, seized him round the waist and dragged him into the water. With one sharp cry of agony the unfortunate victim disappeared. An alarm was raised, and the young men of the village, seizing their harpoons, hastened to the bank. But, of course, no hope of rescue remained; a track of blood on the surface of the muddy stream revealed the Indian's fate. Vengeance, however, was still within reach, and embarking in their canoes they followed up the monster. It came up to breathe—one leg of the victim projecting from its horrid jaws—and was immediately despatched.

Encounters between a jaguar and an alligator are not unfrequent, and the latter is not always the conqueror. Nothing can give a clearer idea of the jaguar's strength than the comparative ease with which he defeats and destroys the crafty monster of the river-waters, unless it should happen to be an individual of extraordinary size.

It is said, though perhaps on no very good authority, that when the cayman has once tasted human flesh, it

hungers after it, like the tiger and the jaguar. While Humboldt was residing at Angostura, one of these creatures seized an Indian by the leg while he was engaged in pushing his boat ashore in a shallow lagoon, and immediately dragged him down into the deeper water. The cries of the unfortunate man speedily drew to the spot a crowd of excited spectators, who could render no assistance, but looked on, with interest profound, at the struggle between the man and the brute. At first the Indian calmly searched his pocket for a knife, but not finding it, he seized the reptile by the head, and pressed his fingers into its eyes with such force as to blind it. But the cayman did not release its victim. It disappeared beneath the surface with the poor wretch, rose again with him as soon as he was drowned, and dragged the body to a neighbouring island.

The monster is remarkable for its tenacity of life. One of these caymans, having been struck by a harpoon, was dragged upon a sand-bank, where it lay a while, apparently dead. But in time it seemed to recover new life from the influence of the sun's rays, and suddenly snapped about it with so much fury that Schomburgk and his companions judged it better to withdraw to a safe distance. The bravest of the Indians then seized a short pointed stick, and, creeping along the ground, approached the monster, which raged at him with wide-open jaws; he plunged the rude weapon deep into its cavernous throat. Two other Indians then stole up in its rear, and dealt it some heavy blows on the extremity of its tail. At each attack, it bounded in the air and stretched its horrible jaws; nor was it until after a prolonged struggle that it was finally overcome.

CHAPTER III.

THE ISLANDS OF THE PACIFIC.

"Summer-isles of Eden lying in deep purple spheres of sea."—TENNYSON.

THE ample surface of the Pacific Ocean is studded, within the Tropics, by islands and groups of islands so numerous as to suggest the idea that they are the fragments of a broken-up continent. Some of them are volcanic, and have been elevated from the ocean-bed by a series of violent convulsions; others are coralline, and have been created by the labours of the coral zoophytes rearing their superstructure on the summit of submerged peaks. The former are almost invariably blessed with a rich and genial soil, which yields abundant harvests of the choicest gifts of Nature. The latter are barren belts of land, more or less circular in form, which generally enclose a central lagoon, connected with the sea by a narrow channel; or they are mere patches of coral, around which the waters eddy and swirl with incessant roar. These produce nothing but a few dwarf plants, a scanty herbage, and a few cocoa-nut trees; and their only inhabitants, in most cases, are the sea-birds, which resort to their shores for breeding purposes.

The principal Polynesian groups are those of the Society Islands, the Friendly Islands, the Sandwich Islands, the Marquesas, the Fiji, the Carolines, the Laccadives, the Maldives, and the Dangerous Archipelago.

The character of the first four groups may be inferred from that of Tahiti, which rises in mountains seven thousand feet high, surrounded by a narrow littoral or shore-plain, and, except where cleared by the hand of man, clothed in exuberant forests of cocoa-nut palms, bananas, bread-fruit, yams, and other productions of a Tropical climate. Vegetation covers every rood of ground, and the climate is singularly delightful,—the Tropical heats being tempered by the fresh breezes of the ocean.

In all these islands, however, animal life is as scarce as vegetable life is abundant. When first visited by Europeans, no animals were found but the dog and the hog; and the only reptile was a harmless kind of lizard. Birds were equally rare; except those which love the fierce music of the great sea,—such as the broad-winged frigate-bird, the majestic albatross, and the stormy petrel, supposed harbinger of the tempest.

The Frigate-bird can spread its wings to the extent of nine or ten feet; and such is its power of flight, that it has been found two hundred leagues from the nearest shore. When a gale arises, it soars far up above the storm, and remains in the calm of the upper regions until the return of fair weather. It is said to be able to sustain itself in the air for days together without taking any rest.

It feeds upon fish, and frequently will rob the gannet of its prey, pouncing down upon it just as it is preparing to

retire to its breeding-place. Its voracity and fearlessness are such that it will even fly at the fishermen, and snatch at the scaly booty which they hold in their hands. When it has enjoyed a sufficient repast, it proceeds to the nearest land, and, perched upon a tree, digests its food in peace.

In some parts of the Polynesian seas the Albatross is met with; the largest and most powerful of all the ocean-

ALBATROSS.

birds. The seamen, in allusion to its size and bulkiness, call it the Man-of-war and the Cape Sheep. Some individuals have been caught whose wings measured seventeen feet from tip to tip. Powerful as it is, it is one of the most cowardly of birds. Even a poor sea-mew does not

fear to attack it; and the albatross escapes from its enemy by plunging into the water.

It feeds upon molluscs, small marine animals, their eggs, and upon the spawn of fish. It will swallow even large fish without tearing them in pieces; and if the fish be too large to engulf at a single mouthful, it may be seen with a part of the spoil depending from its bill, until the other portion is digested.

Possessing an extraordinary power of flight, it is discovered at an enormous distance from all land, and it appears to rejoice in the wind and the storm. When it feels weary, it takes its rest upon the waves, nestling its head under its wing. At such a time its capture is easy, for the seaman, approaching it stealthily, may knock it down with a boat-hook, or pierce it with a harpoon. There is a superstition among mariners, however, that it is unlucky to kill an albatross; and on this superstition Coleridge has founded his beautiful poem of "The Ancient Mariner."

Among the more remarkable denizens of the Tropical Ocean must be placed the Flying-fish, which ever and anon springs with a leap out of the waves, and flies for some distance, in order to escape the attacks of the coryphæna and the bonito. But it is not free from danger even in the air. The keen-eyed frigate-bird, from its airy elevation, catches sight of the unfortunate fugitive, and pounces upon it with a swift and sudden stroke. Sometimes the ill-fated creature makes another effort, and falls among the rigging or on the deck of a passing vessel. It

owes its power of flight to the expansion of its pectoral fins into something like wings. These, however, are neither long nor powerful, and play the part of a parachute rather than that of wings.

FLYING-FISH.

Mr. Bennett says of these fishes :—"I have never been able to see any percussion of the pectoral fins during flight; and the greatest length of time I have seen this volatile fish on the fly has been thirty seconds by the watch; and the longest flight mentioned by Captain Basil

Hall has been two hundred yards, but he thinks that subsequent observation has extended the space. The usual height of their flight, as seen above the surface of the water, is from two to three feet; but I have known them come on board at the height of fourteen feet and upwards. And they have been well ascertained to come into the chains of a line-of-battle ship, which is considered to be upwards of twenty feet. But it must not be supposed that they have the power of raising themselves in the air after having left their native element; for on watching them I have often seen them fall much below the elevation at which they first rose from the water; nor have I ever in any instance seen them rise from the height to which they first sprung, for I conceive the elevation they take depends on the power of the first spring."

To the Tropical Seas belongs also that formidable monster, the White Shark.

It attains the length of twenty and even thirty feet, but is to be dreaded not for its size only but for its ferocity. It is the scourge of ocean; insatiable, impetuous, and persistent. Alas, for the unfortunate seaman who falls overboard while one of these creatures is frequenting the vessel's course; or for the unwary bather, who is often surprised by it while thoughtlessly disporting in the calm waters of some island-lagoon! Its appetite is indiscriminate, but it displays a dreadful partiality for human flesh, and follows the ship in which its instinct tells it it is to be found with ever-watchful eyes and ever-ready jaws. It may be seen in the wake of the slaver, prepared to

banquet on the dead bodies of the negroes as they are carelessly thrown overboard.

The mouth, armed with six rows of wedge-shaped teeth above and below, is placed in the lower part of the creature's head, and therefore, before it can seize any prey which floats above it, it must turn itself round in the water. This peculiarity affords its human enemy an opportunity of encountering it successfully. The African negro, for example, cautiously swims towards it, and

WHITE SHARK.

watches for the moment when the monster turns, to plunge his knife into its white bolly. The diver, when hunting for pearl-oysters or coral, is sometimes attacked by the shark, and frequently escapes by resorting to this mode of combat. Need we say that the greatest courage, presence of mind, and dexterity are necessary on the part of him who thus ventures to confront the "terror of the seas"?

Man has everywhere declared war against it, and the capture of a shark is always an event in the annals

of a voyage to which the crew look back with satisfaction.

To Captain Basil Hall we owe a spirited description of a shark-hunt, which may be condensed and abridged for the benefit of our readers.

On one occasion, as the ship he commanded was steadily ploughing her way across the ocean, the sharp-curved dorsal fin of a huge shark was seen to rise about six inches above the water, cutting the glassy surface of the sea with as smooth a line as if a sickle had been drawn along it. All hands were immediately on the alert. The shark was the seaman's enemy, and could expect no mercy. A piece of pork, weighing about four or five pounds, is selected for bait, and a strong hook inserted in it. This hook is about the size of a man's little finger, with a curvature as large as a man's hand when half closed; measures six to eight inches in length; and is attached to a formidable rope, which is suspended to the end of the mizzen topsail halyard, and cast into the ship's wake.

Sometimes, but not often, the shark flies at the bait immediately, and with so much eagerness as actually to raise part of his body out of the water. In such a case he swallows bait, hook, and a foot or two of the rope at a gulp, and carries away the treacherous booty with a speed that makes the rope crack and shiver when all the coil is run out. The seaman who guides the line needs at this moment to be vigilant and careful. An unskilled hand is apt, in his over-eagerness, to jerk away the hook before it has entered far enough into the monster's jaw. The secret is, to allow him to gorge the entire bait, and then,

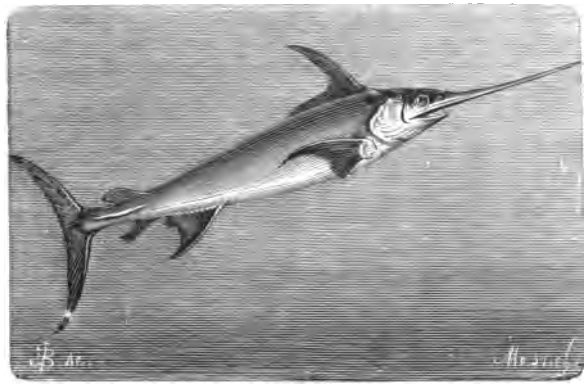
CATCHING A SHARK.

by a strong and dexterous pull, to bury the barbed point in the coat of the stomach. When the hook is first fixed, the line runs out at the rate of something like twelve knots an hour.

The abruptness of the jerk with which the creature's

career is stayed frequently turns him completely over. But no sailor would think of hauling a shark on board merely by the line attached to the hook. To prevent the rope from breaking, the hook from snapping, or the jaw from being torn away, recourse is had to a "running bowline." This noose is slipped down the rope and passed over the head of the shark, and is made to join at the point of junction of the tail with the body. Then the conquered monster is hauled up over the taffrail with a shout of triumph, and, prone upon deck, is given up to the knives of the crew.

The Sword-fish owes its name to the sword-like prolonga-



SWORD-FISH.

tion of its upper jaw. It measures about six feet in length, and is strongly combative, possessing an apparent irresistible desire to test the strength of its formidable weapon against and upon all bodies with which it comes in contact.

Not only will it attack the whale, but it fears not to encounter the shark; and sometimes, in a fit of blind fury, it drives its lance right into the hull of a large ship, through the metal sheathing and into the solid timber.

Such, besides herds of gambolling dolphins, are the principal inhabitants of the waters of the Tropical Ocean; but in the lagoons of the coral islands, and in the waters near their shores, swarm myriads of Tropical fishes, remarkable for their fantastic outline or the beauty of their hues.

The crabs and lobsters of these seas attain a size which seems monstrous when compared with that of the species belonging to our Northern waters. There are many Tropical species, however, known as land crabs, which spend the greater part of their existence many miles from the sea, and only revisit the latter in order to deposit their spawn. Impelled by a powerful instinct, they annually migrate seawards, crossing hills and dales in an unbroken line, and surmounting every obstacle with incredible perseverance. Having deposited their eggs in the sand, they march back again to their hilly retreats,—always choosing the night-time for their travel, and during the day concealing themselves among the grass, or in any obscure corner they can find.

To the Tropical waters belong swarms of gigantic Cephalopods,—those calmars and poulpes of which such wondrous stories are told. Their bodies are surrounded by large arms, tentacles, or fleshy processes, by means of which they seize upon their prey.

A mollusc frequently found in Tropical waters is the Tridacna Gigas, or Giant Clam, whose colossal valves frequently measure three and four feet across, and weigh five hundred pounds. In the church of St. Sulpice, Paris, a couple are in use as holy-water basins; and in the South Sea Islands they are converted into receptacles for rain.

The exquisite hues which embellish many of the molluscs, and the grace and fanciful elegance of their shells, have rendered them objects of general admiration; so that many, such as the cones, harp-shells, volutes, cythereas, and tellinas, possess a commercial value, and in the markets of Europe and Asia frequently fetch a high price.

Descending still lower in the scale of marine life, we find the Jelly-fish, or Medusæ, disporting in the Tropical waves in hosts "as brilliant as the skies." Who shall fitly describe their glowing tints, their wonderful transformations, their changeful aspects? Some float upon the water like fairy bells; others might be taken for the chalices and goblets of the ocean nymphs; others, again, resemble a belt or girdle; some are shaped like mushrooms, some like a cluster of grapes.

It has justly been said that the most profuse vegetation of the most favoured Tropical Regions does not present a greater abundance of attractive forms than do the gorgeous gardens of Ocean, where every branch and spray seems instinct with life. All that is beautiful, wonderful, or extraordinary in the great families and orders of fishes, in the echinoderms, the medusas, the polypes, and the

molluscs, may be found in the warm, clear waters of the Tropical Seas; on their silvery white sands, or clinging to their sharp, bold rocks; where, having once taken up their position, many of these creatures cling like parasites. To whatever depth we carry our researches, we find this animal life still abundant and still various. New forms are constantly presenting themselves; and each form is characterized by some special feature of grace or ingenuity. The mind almost shrinks from the contemplation of a world so populous, so astonishing, so beautiful, and yet so sublime!

We conclude this chapter with a few words on the coral animals and their work. They are the ever-laborious architects of Ocean, slowly but patiently engaged in the construction of new continents.

Their species are numerous, but their work is one and the same. Generation after generation fulfils the same task, and having accomplished its end, perishes. The calcareous secretions of myriads of individuals accumulate in constantly increasing masses, which, according to circumstances, become islands or reefs. Coral, therefore, is simply the solid skeletons of innumerable races of coral animalcules, all welded together, with broken shells and sand, into hard calcareous rocks. None of these races can live in very deep water; many can live only near the surface. Some can work only on the outside of the mass they are building up; others only on the inside, which is sheltered from the prevailing winds. None can live out of water, and therefore the structure cannot rise above a

certain level. It may be extended laterally or vertically, but it cannot be carried higher than the surface of the waves :—

> "Millions of millions thus, from age to age,
> With simplest skill, and toil unweariable,
> No moment and no movement unimproved,
> Lay line on line, on terrace terrace spread,
> To swell the heightening, brightening gradual mound,
> By marvellous structure climbing towards the day."

CHAPTER IV.

THE GREAT AFRICAN DESERTS.

"The patient camel bears him
Over these wastes of sand."—SOUTHEY.

THE SAHARA.

N immense region of Tropical Africa, the area of which is equal to that of the Mediterranean Sea, and in some parts of a lower level, is covered by the pathless tracts of the great Sahara Desert. For nine months in the year this dreary wilderness is lashed and smitten by the scourge of the east wind,—which at the equinoxes gathers up its forces into a hurricane, and drives the sand before it in immense clouds, producing at noonday the darkness of night, and overwhelming caravans of men and animals in one common and terrible fate. The sand lies in ridges, like the billows of a congealed ocean; while the scorching wind of the Desert comes like the "blast of Death." In the north the saline springs are numerous, and the salt waters gather in dazzling lakes, which mock the eye with their treacherous splendour. The ground lies thickly incrusted with crystals of salt, which reflect the hot rays of the sun like so many

mirrors, while the particles borne on high by the whirlwinds glint through the air like incessant showers of diamonds.

The reader must not suppose, however, that the Sahara is, as is too often represented, nothing but a sea of sand. Considerable portions consist of barren rocks and herbless gravel, which are not less impassable and perilous than the sandy wildernesses; but on the eastern and northern

OASIS IN THE SAHARA.

borders of the Sahara fountains of fresh water well up to the surface, and nourish an "oasis," or "island of verdure," in the midst of all the barrenness. These oases are usually small basins, sunk below the general level of the Desert, and surrounded by an arenaceous or calcareous

border, as by a frame. These oases vary in size. The smaller produce ferns, acacias, herbage, and a few plants; the larger, forests of date-palms, which are frequented by lions, panthers, reptiles, gazelles, and numerous birds. Here the Arabs build their villages, surrounding them by rude fortifications; and under the sheltering trees raise plentiful crops of vegetables and millet, fertilizing the soil by abundant irrigation. But for these oases the Desert would be impassable. The caravans, in their long and toilsome journeys, are enabled at these resting-places to obtain fresh supplies of water and provisions before venturing anew into the wilderness.

The tree of the Desert is the date-palm, which grows on every oasis, and the great height of which enables the Arab agriculturists to cultivate a variety of plants and vegetables beneath its shelter. Shade, air, and water,—these three conditions permit a really abundant growth, despite the scorching heats of the Tropical summer. The fruit-trees which flourish best are the fig, the pomegranate, and the apricot; next to these the vine and olive; more rarely the peach, the pear, and the orange. Corn—particularly *dourrah*, or barley—is largely cultivated; also cloves and tobacco, and the *henneh*, or henna, which supplies the Oriental beauty with a favourite cosmetic. You will also see patches of pumpkins, gourds, and melons; small squares of flowering lucern, which yield as many as eight crops yearly; and fields thickly planted with carrots, cabbages, onions, turnips, beans, and pimento.

Such is the vegetation of these oases; and it is such scenes as these that enable us to realize the truthfulness of

the old geographer's description, when he compared the Sahara to a panther's skin, which is sprinkled with black spots on a tawny ground.

And now we come to the animal life of the Desert.

The first and foremost place is occupied by the laborious and abstemious Camel; which, like the palm, is all-

AFRICAN CAMEL.

essential to the Desert, as the Desert is all-essential to *it*. Without its invaluable aid, the wastes of the Sahara, or of Libya and Nubia, would be impassable; and hence it has been appropriately designated "*The Ship of the Desert.*" It supplies the nomadic tribes with every article of primary necessity—with food, clothing, habitation, fuel, and the means of transport. The flesh of the young camel is inferior to beef or mutton; but it is savoury, and not difficult of digestion. The female yields an abundance of milk,

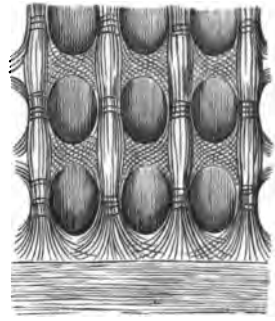
almost as nutritious and as agreeable to the taste as that of the cow. The hair makes a wool of coarse quality, but long, tough, stout, and easily worked. Out of the skin capital garments, coverings, and tents are made; the tissues are manufactured into harness, and applied to various other purposes. Camel-leather is not inferior in suppleness or firmness to that which we make use of in Europe. The dung of the camel, dried in the sun, serves as fuel, not only for cooking food, but even for working metals. Finally, as a beast of burden the camel surpasses all other animals in strength, swiftness, and the faculty of enduring fatigue; and, more particularly, in that proverbial abstemiousness which enables it to accomplish a journey of several successive days without taking either food or drink.

Nature, or rather let us say the God of Nature, has wonderfully adapted the camel for the particular work it is called upon to do. This may be seen in the structure of its foot, in the organization of its stomach, and in the hunch or hump which it carries on its back. To the thoughtless or ignorant the last-named might appear an excrescence or a deformity; but it is, in reality, of essential service to the animal.

Its foot differs from that of any other ruminant. It is bifurcated; but the two strong and elongated toes are furnished with a short nail, instead of a hoof. The sole is thick and horny, and the foot can therefore plant itself on a wide surface, and secure, as it were, a good grip of the sandy soil over which the animal labours.

Its stomach is divided into four compartments, and lined with numerous cells, capable of containing a quantity of

tolerably pure water, very drinkable, and kept as a kind of reserve supply, with which the camel satisfies its thirst when bound on a long journey through a waterless country. The internal reservoir which the animal thus carries about with it has often proved of infinite value to its master, who, in the agonies of extreme thirst, has been glad to kill the useful creature, and slake his fevered throat in the liquid contents of its stomach. Such an incident has been described by the poet Southey :—



CELLS OF CAMEL'S STOMACH.

"At length Lobaba said:
'Son, we must slay the camel, or we die
For lack of water. Thy young hand is firm....
Draw forth the knife, and pierce him!'....
Then from his girdle Thalaba took the knife
With stern compassion, and from side to side
Across the camel's throat
Drew deep the crooked blade.
Servant of man, that merciful deed
For ever ends thy suffering! But what doom
Waits thy deliverer? 'Little will thy death
Avail us!' thought the youth,
As in the water-skin he poured
The camel's hoarded draught."

The African camel has but one hump, the Asiatic has two. The hump is a kind of storehouse of solid nutriment, on which the animal can draw for supplies long after it has exhausted every digestible part of the contents of its stomach. This storehouse consists of one or two large masses of fat stored away in minute cells. When the

camel is travelling through a fertile country, where pasture is plentiful, its hump expands and acquires a marvellous plumpness; but after a protracted journey in the wilderness, it shrivels up, and is reduced to skin and fibre, owing to the consumption of its supply of nutritious fat.

The camel finds it no hardship to be deprived of water for eight, nine, or even ten days; and it is said, on what seems good authority, that he can even prolong his abstinence for twenty-three or twenty-five days. His daily ration of solid food weighs about a pound or a pound and a quarter. When he has started on his journey fasting, he frequently obtains no better sustenance on the way than the tops of some dry and dirty branches, with a handful of dry beans for his evening meal.

This remarkable power of endurance, however, is not his only good quality. His strength is extraordinary; and his swiftness equals that of the ordinary horse. He can carry a burden of from six hundred to a thousand pounds from thirty to thirty-five miles a day. It must be added that he is not an agreeable animal to ride, owing to his rough, awkward, swinging gait.

In the woodier parts of the Desert the traveller frequently catches sight of an animal which attracts attention by his extraordinary shape. At the first glance he sees nothing but neck and leg, and one might almost suppose that in his construction the *body* had been omitted. Certainly, no other animal raises its head so loftily as the Giraffe. From the hoof of the fore leg to the tip of the ear he measures seventeen or eighteen feet; while the

slender body, from the breast to the root of the tail, measures only seven. He is really a graceful and elegant animal; and his easy, pleasing movements have procured him his Arab name, Xirapha, whence our "giraffe."

GIRAFFE.

In several respects he is a wonderful illustration of the manner in which the Almighty Creator has adapted every one of his creatures to the conditions under which it is

compelled to live. The boughs of the trees which furnish the giraffe with his favourite food grow at a considerable height from the ground; hence his long neck, which he can raise to a very great elevation. The level plains in which he dwells offer but little protection from the approach of beasts of prey. But the dark, lustrous, and gentle eyes of the giraffe are so placed that he can take in a wider range of the horizon than any other quadruped. While browsing on the green young shoots and fresh leaves of the acacia, he is able, by means of the lateral projection of his orbits, so to direct his sight as to anticipate a threatened attack in the rear from the stealthy lion or any other of his enemies. To an open attack he sometimes offers a successful defence by striking out rapidly with his powerful and well-armed feet. It is said that the king of animals himself is frequently discomfited and disabled by the wounds the giraffe has inflicted with his hoofs. His enemy, however, generally endeavours to surprise him when he is at rest—springing suddenly upon his back, and tearing him in pieces.

The giraffe is found only on the borders of the Sahara, and frequents the wooded plains in small herds. His usual gait—a kind of swinging stride, the fore and hind leg on the same side moving together—is exceedingly rapid; but his gallop is laboured and slow, so that the hunters invariably seek to force him into one, as then he is easily overtaken.

THE BIRD OF THE DESERT.

We have spoken of the palm as the tree of the Desert, and of the camel as the quadruped of the Desert. In

OSTRICHES.

like manner, the Ostrich may be called the Bird of the Desert.

A bird which cannot fly; for his small weak wings, though of considerable assistance to him in his swift motion across the sandy plain, are incapable of sustaining him in the air. Yet, so far as height and size are concerned, he is the king of birds; for he stands seven or eight feet above the ground, and attains a weight of from two hundred to three hundred pounds.

In the barren African Desert the ostrich roams in large

flocks, relying upon his swiftness of foot to escape from the pursuit of man or of beasts of prey. He is generally seen quietly feeding in some open spot, where no stranger can approach unobserved by his wary eye. But his suspicious nature is often his ruin. If he sees a traveller's waggon moving away to the windward, he concludes he is intending to circumvent him, and away he rushes to the leeward, until he gets so near to the front oxen as to afford the marksman an easy shot. The hunters frequently take advantage of this weakness, when he is discovered in a valley open at both ends. A number of men begin running, as if to cut off his retreat from the end through which the wind comes; and although he has the whole country before him at the other end, on he wildly rushes to get past the men, and accordingly falls a victim to their spears. He never swerves from the course he once adopts, only increases his speed.

When he is feeding, his stride is from twenty to twenty-two inches; but when alarmed, it will measure from eleven and a half to thirteen or fourteen feet. Dr. Livingstone once counted the animal's speed by a stop-watch, and calculated thirty steps in ten seconds. Generally, one's eye can no more follow the legs of an ostrich than it could the spokes of a carriage-wheel in rapid motion! But take the above number, and allow twelve feet as the average to a step; the result is a speed of *twenty-six miles* an hour, which is equal to the speed of an ordinary railway train.

The female bird begins to lay her eggs before she has chosen a spot for her nest—which, in fact, is nothing

more than a hollow in the sand, a few inches in depth, and about three feet in diameter. As many as forty-five eggs have been found in a single nest; but these are generally deposited by several females, and as they are without protection, large numbers are consumed by the jackal and the vulture.

The food of the ostrich consists of leaves of various kinds—however hard and tough does not matter to his indiscriminate taste—of pods and seeds of different species of leguminous plants. Such food is necessarily hard of digestion; and therefore, as a condiment, he swallows a great quantity of pebbles, many of which are as large as marbles. He picks up also a few bulbs, and occasionally a wild gourd, to afford moisture. He is hunted, as everybody knows, for the sake of his splendid white plumes, which have always been valued for their loose, wavy, and flexible barbs. But his body-feathers are of a glossy jet, from which the Damaras and the Bechuanas construct particularly handsome umbrellas or sun-shades. In some parts of Africa the bird is domesticated for the sake of the eggs, each of which has an average weight of three pounds, and is equivalent to twenty-four of the common hen's eggs; and recently ostrich farms have been established at the Cape, where those gigantic birds are reared for the sake of their feathers.

OTHER FORMS OF ANIMAL LIFE.

The silence of night is often disturbed in the Desert by the strange eëry howl of the Hyena, which sounds like a maniac's laugh. He shuns the light of day; but when

darkness gathers over the plains, sallies forth, like the owl and the bat, to feed upon the refuse left behind by the passing caravan, or on the carcasses of birds and quadrupeds. He is one of Nature's scavengers, and cares not how disgusting is the food with which he satisfies his

HYENAS AND THEIR PREY.

appetite. He frequents the borders of the oases in search of carrion, or, crossing the frontier of the Desert, enters the towns and villages, banqueting on the offal in the streets, or profaning the sanctity of the cemetery. So strong are his jaws and so sharp are his teeth, that he can easily crush cartilage and bone, and therefore obtains

a meal off a carcass which consists of little more than the bony skeleton.

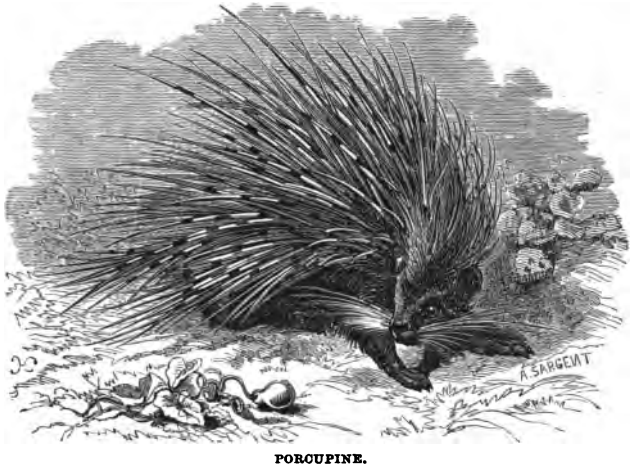
He is a cowardly animal, and far from attacking the lion and the panther, as some writers have asserted, he will shrink from an encounter with animals weaker than himself.

Like the hyena, the Jackal is also an inhabitant of the Desert. He is nocturnal in his habits, and loves to awaken the echoes of the night with his discordant cries. Generally he hunts in packs; but sometimes he prefers a single life, and then, drawing near the dwelling-places of man, he proves a greater foe to the peace of the poultry-yard than the most astute fox. His voracity is equal to his wiliness, and, in spite of the vigilance of the farmer or peasant, he contrives to regale himself on the contents of the larder as well as on the inhabitants of the hen-roost.

He ventures far afield in the train of the larger carnivora, to feed on the remains they throw aside when their hunger is satisfied. Hence he has come to be called the Lion's Provider, because so constantly seen in company with the king of beasts, whom he was supposed to direct to his prey. But the lion is, in truth, the purveyor for the jackal, who feeds at his expense; though sometimes, it is said, he pays dearly for the banquet, as the lion, in default of other prey, condescends to dine upon the jackal!

The Porcupine is one of the few animals which find sufficient sustenance for life in the Desert. Its burrow is

easily discovered by the path which the creature treads down in its frequent exits and entrances, and by the quills which lie scattered here and there, thrown off in its moments of irritation or alarm. The hunters, when they have found out the hole, widen the mouth with their



PORCUPINE.

swords or knives, until the enraged animal, with quills erect and a hoarse growl, springs from its lair to plunge into the nearest thicket, and is slain by the ready weapon. Then a fire is kindled, and the animal roasted among the ashes. The quills fall off, leaving the hunters to enjoy a dish of succulent and well-flavoured meat.

Snakes are numerous in the Desert; and so are Scorpions. These, in fact, are the only dangerous animals, for the lion never ventures into the sandy wilderness. The serpents

belong chiefly to the genus *Cerastes*, or Horned Viper; so called because one of the scales of each eyelid is developed into a kind of horn. Their bite is serious in its effects. They lie half-buried in the sand, and seem able to live almost entirely without water.

Scorpions are known in Europe, but in the Torrid Zone they are of a much more formidable character, as well as of much greater size. Frequently they attain a length of six or seven inches. In appearance they are something like the spider; but they are more repulsive, and when advancing upon you, with the long sharply-pointed tail curved over the head, and the claws extended, are calculated to produce a decidedly unpleasant impression. The impression is deepened when you remember the poisonous character of the creature's sting. Its tail terminates in a crooked fang, near the tip of which two or three tiny apertures may be detected. Through these apertures, which are connected with the poison-gland, it ejects its venom; a venom fatal even to man himself, unless powerful remedies are immediately applied.

AFRICAN SCORPION.

CHAPTER V.

THE LAKE-REGIONS OF CENTRAL AFRICA.

OUR knowledge of Central Africa is chiefly due to the enterprising research of Burton, Speke, Livingstone, Cameron, and Stanley, who have let in the light of day upon an extensive and fertile region buried for ages in cloud and shadow, and have enabled our geographers to define with tolerable accuracy its principal features. Roughly speaking, the region to which we refer is situated between the borders of the Sahara and the boundaries of Kaffraria; and, as might be expected of so vast an area, it exhibits nature in its most varied forms, from the snow-crowned mountain to the burning plain, from the luxuriant forest to the naked steppe.

The old conception that Equatorial Africa was little better than a waste and howling wilderness has been effectually dispelled by the discoveries of those intrepid explorers, who have shown us instead a continent diversified by mountain and valley, with fertile table-lands, and a wealth of navigable rivers and great inland lakes; inferior in no degree in beauty or in fertility to the other

great regions of the globe. The reader will be prepared, therefore, to find that the vegetation is not only abundant but various.

The coarse, strong, broad-leaved *dourah*, or *sorgho grass*, is very general: it is the principal cereal cultivated in Africa; and the natives employ the grain in the preparation of their favourite dish, *kouskoussou*.

Rice and maize are also grown. Among the plants with edible roots are various kinds of yams, sweet potatoes or batatas, and the manioc or manihot. The last-named, better known as cassava, is a deadly poison if eaten raw; but heat deprives it of all its noxious properties, and, roasted or boiled, it affords a delicious and nutritious food. The popular farinaceous substance called tapioca is obtained from its pith. On the other hand, the juice extracted from its roots is used for poisoning the tips of darts and arrows.

The coffee-tree, cocoa, indigo, black pepper, are among the products of Tropical Africa. The anona bears an aromatic fruit which is highly esteemed by the natives—its so-called "custard apples" resembling a rich cream; while the celebrated banana furnishes a valuable substitute for wheat or the bread-fruit, and is remarkably productive. Forty or fifty plants will thrive in a square space of one thousand feet, and an acre of ground will yield a bountiful provision for fifty men. The area of land which, if sown with wheat, would feed only one person, will support *five-and-twenty* if planted with bananas.

We now pass on to the consideration of—

THE ANIMAL LIFE OF CENTRAL AFRICA.

And foremost among these we must place its Pachyderms, the hippopotamus, the rhinoceros, and the elephant.

The hippopotamus belongs to the river, the rhinoceros to the plain, and the elephant to the forest.

THE HIPPOPOTAMUS.

The name of the Hippopotamus, borrowed from the Greek, signifies the "river-horse;" and his favourite haunts are the rivers, pools, and deep rank marshes. His habits are essentially amphibious. He both dives and swims with surprising ease and dexterity, when we consider the enormous bulk of his body and the shortness of his heavy unwieldy limbs. He can remain for some time under water. His thick leathery hide, almost impervious to the hunter's bullet, is of a brownish-black colour. He stands nine or ten feet in height, and measures from ten to twelve feet in length. His head is colossal, with a cavernous mouth; the robust heavy jaws are armed with rows of immensely strong teeth, the incisors and canines of the lower measuring sometimes more than two feet in length, and weighing upwards of six pounds each.

This colossal animal feeds chiefly on the short grassy growth that lines the river-banks and the shores of the lakes, the sweet sugar-cane, rice, and millet. It is said that he occasionally regales himself with a little fish. However this may be, he is, in the main, an herbivorous animal.

In all Eastern and Southern Africa, from the Cape to

HIPPOPOTAMUS.

the Senegal, and from the Congo to the Nile, the hippopotamus is found. The hunters pursue him for the ivory yielded by his tusks; nor do they despise his flesh, though it is somewhat coarse. Sometimes they seek out the animal's usual path, and dig in it a pit of considerable depth, planted with sharp-pointed poles, and concealed by a thatching of leafy branches. Treading upon these, he is precipitated into the pit, where he falls on the *chevaux-de-frise* prepared for his reception. Sometimes, in the dusk of evening, they lie in ambuscade among the bushes, and aim at his enormous head the deadly bullet, as he comes up from the water, labouring and bellowing.

But a more stirring mode of pursuing the chase is with the harpoon. The position of the hippopotamus having been ascertained, one or more of the boldest and most

skilful of the hunters stand prepared with the harpoon; while the others make ready to launch the raft and canoes, if the attack be crowned with success. The snorting and plunging of the "river-horses" become more and more distinct, though they themselves are still hidden from view by a bend of the stream. When this is passed, several dark objects are seen floating idly on the waters, looking, as Charles Andersson remarks, more like the crests of sunken rocks than living creatures. Ever and anon, one or other of the shapeless masses disappears, but soon rises again to the surface. On glides the boat with its dark-skinned crew, who are now wrought up to the highest pitch of excitement. At last it drifts into the midst of the herd, who are apparently unconscious of danger. One of the animals comes in contact with it. Now is the critical moment! The foremost harpooneer raises himself to his full height, and, with all the force of his brawny arms, plunges the deadly iron into the body of the hippopotamus.

Down to the bottom dives the wounded animal; but all his efforts to escape prove fruitless. Though the line or the shaft of the harpoon should break, the fatal barb cannot be withdrawn, but remains imbedded in the flesh.

Some of the men now launch a canoe from off the raft, and hasten to the shore with the harpoon-line, fastening it about a tree or a bunch of reeds, so that the animal may either be "brought up" at once, or should the pressure on the line prove too great, be "played with," like a salmon by the fisherman.

Then the other canoes are launched, and chase is given to the wounded brute, which at length falls beneath a

HUNTING THE HIPPOPOTAMUS.

constant storm of javelins, and is dragged ashore in triumph.

The hippopotamus is a gregarious animal, collecting generally in herds of twenty or thirty. He is very inoffensive; but at times, when alarmed or irritated, will turn upon his assailant,—and in such a case he is apt to prove a very formidable opponent.

THE RHINOCEROS.

In the wooded and well-watered plains of Africa, from Abyssinia to Kaffraria, as well as in Tropical Asia, is found the Rhinoceros—easily distinguished by the one or two solid, curved, and sharp-tipped horns developed from the nasal bones. He is one of the most ungainly and repulsive of animals! The coarse, thick, knotty hide is so tough and impenetrable about the short thick legs and awkward body, that neither the claws of the tiger nor the steel or shot of the hunter can make any impression upon it. In disposition he is fierce when roused, but not prompt to attack; he leads an apparently lethargic life, wallowing on the marshy banks of lakes and rivers, where grows the vegetable food on which he exclusively feeds.

It might be thought that an animal so ungainly and so bulky would be slow of movement; but the contrary is the fact. When pursued, he dashes through the forest with tremendous speed, and marks his path by the dead trees which he brings to the ground, and the broken boughs which lie scattered in every direction. The havoc made by a cannon-shot in passing through the timbers of a line-of-battle ship may give some idea of the *kind* of destruction

accomplished by the rhinoceros in his headlong course. He is not easily overtaken; nor is he easily surprised, for he is protected by his keenness of scent and of hearing. He can discern the approach of an enemy from a considerable distance: and it is well for him that these senses are so powerful, inasmuch as, owing to the smallness and deep-set position of his eyes, his range of vision is exceedingly limited. It is said that he is also assisted by the warnings of a bird—the beef-eater (*Buphaga Africana*)—which frequently accompanies him, seems to be animated by a strong feeling of attachment for his unwieldy friend, and indicates the approach of danger by a signal-cry.

Like most of the Tropical animals, the rhinoceros rests or slumbers during the day. At nightfall, he proceeds to the nearest lake or river to quench his thirst, and, by wallowing in the mud, to cover himself with a coat of clay as a protection against insects. Then he sallies forth on a foraging expedition, and in the course of the night covers a considerable extent of ground. At sunrise he retires again to rest, and under the shade of rock or tree sleeps through the hot hours of the Tropical day, either standing erect, or stretched out at full length.

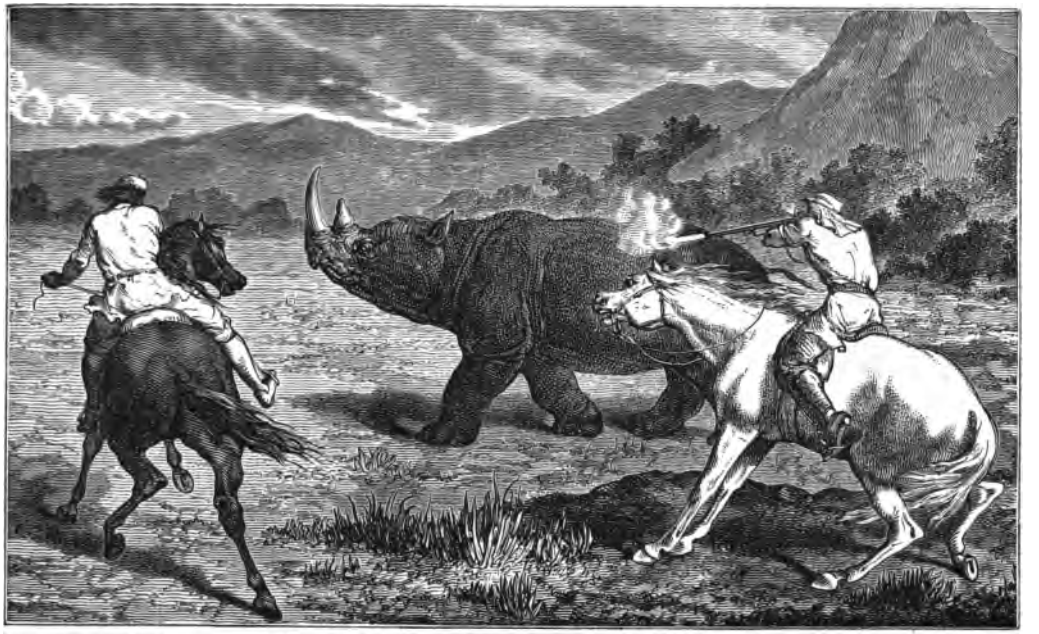
Africa possesses both a white and a black rhinoceros, of which there are two species, the borela and the keitloa. The white rhinoceros is of a comparatively inoffensive nature, timid, gentle, harmless; and living wholly on the grasses. The black is revengeful, gloomy, and ferocious, and in his paroxysms of passion is more formidable than any other African quadruped. He feeds upon the thorny

sprays and branches of the acacia, and on the roots which he digs up with his large horn.

The hunter pursues the rhinoceros after various fashions. He entraps him into a pitfall; or he hides behind a screen near his usual drinking-place, and shoots him when he comes down to quench his thirst; or he "stalks" him as our British sportsmen "stalk" the deer—taking care to keep to the windward of him, and availing himself of every opportunity of cover. A bullet is always effectual if lodged in the head, or just behind the shoulder; or, at thirty paces, if sent right through the centre of the lungs. The chase of the rhinoceros, however, is always attended with more or less danger; for in his fury nothing can withstand his assault.

The following experience is recorded by Mr. Andersson, the celebrated hunter and traveller, to whom we owe much of our knowledge of the habits of the African animals.

One day he had wounded a black rhinoceros, but was not in a favourable position to repeat the shot. The monster, with a terrible snort, and with his head close to the ground, like a bull, immediately rushed at him. The hunter had only just time to level his rifle and fire hastily, before his enemy was upon him, carrying him to the ground. So violent was the shock that rifle, powder-flask, and ball-pouch were sent spinning ten feet high in the air. On the beast charging me, says Mr. Andersson, it crossed my mind that, unless gored at once by his horn, his impetus would be so great as to carry him beyond me, and I might thus be afforded a chance of escape. And so indeed it



HUNTING THE RHINOCEROS.

happened; for having been tumbled over and trampled on with great violence, the fore-quarters of the enraged brute passed over my body. Struggling for life, I seized my opportunity, and as the animal was recovering himself for a renewal of the charge I scrambled out from between his hind legs. But the infuriated rhinoceros had not yet done with me; scarcely had I regained my feet before he struck me down a second time, and with his horn ripped up my right thigh (though not very deeply) from near the knee to the hip. With his fore feet, moreover, he hit me a terrific blow on the left shoulder, near the back of the neck. My ribs bent under the enormous weight and pressure, and for a moment I must, as I believe, have lost consciousness; I have, at least, very indistinct notions of what afterwards took place. All I remember is, that when I raised my head I heard a furious snorting and plunging among the neighbouring bushes. I now arose, though with great difficulty, and made my way, in the best manner I was able, towards a large tree near at hand for shelter. But this precaution was needless; the beast, for the time at least, showed no inclination further to molest me. Either in the *mêlée*, or owing to the confusion caused by his wounds, he had lost sight of me, or felt satisfied with the revenge he had taken. Be that as it may, I escaped with life, though sadly wounded and sorely bruised, and with some difficulty got back to my screen.

THE ELEPHANT.

Let us enter the Tropical forest. It is in these verdurous shades the most sagacious of animals loves to roam. The

Elephant, however, is by no means partial to solitude, and always joins a herd of from thirty to a hundred individuals, acknowledging the rule of a chosen chief or leader.

There are two species of elephants—the African and the Asiatic. Both are natives of the Tropical World, and inhabit the forest-depths, which they quit only at nightfall,

ELEPHANT.

and in order to repair to the nearest stream. There are no important points of difference in their organization or habits.

The form of the elephant suggests at once the idea of unwieldy strength. His head is large, with extremely small eyes, and broad drooping ears; he has an arched

back, and a thick heavy body, which seems a "world too big" for his shapeless and stunted limbs; his huge feet are divided into five shapeless hoofs; the upper jaw is armed with two enormous projecting tusks, which frequently measure as much as six or seven feet in length; and he is endowed with a wonderful organ in the shape of a proboscis or trunk, of such strength that it can uproot trees, and yet of such delicacy of touch that it can pick up a pin. This organ is about eight feet long; it conveys food to the animal's mouth, and pumps up the enormous draughts of water which, by means of its recurvature, are poured down the capacious throat or over the huge body. Its length supplies the place of a long neck, which would have been unable to sustain the weight of the large head and solid tusks.

The African elephant is readily distinguished by the extraordinary size of his ears. He was formerly distributed all over the African continent, and was much employed in war by the Carthaginians and Egyptians. He is no longer found in the northern parts of Africa, but large herds still haunt the central and southern regions, from the Senegal to the Cape.

When we speak of the lion, his physical characteristic which immediately strikes us is his mane; of the tiger, his superb striped hide; of the rhinoceros, his horn; and of the elephant, in like manner, his trunk. This, indeed, is necessary to his life and liberty; if seriously injured, he cannot feed himself. Its exquisite sensibility of touch is due to a curious appendage at the extremity, which has

been likened to a finger and thumb. On the upper side is an elongated process, soft and flexible, but strong; and on the under, a kind of tubercle against which the former may be pressed. If the articles the elephant collects are not worth the trouble of separate conveyance to his mouth, he retains them in his thumb until the finger has gathered an additional quantity.

It is astonishing in how many ways the trunk contributes to its owner's comfort and enjoyment. He picks a leafy branch, and fans himself with it, or drives away the plague of insects. He uses it to fling dust over his back —a practice in which he seems to find a special pleasure. It expresses his rage or affection; in the former case giving utterance to a loud hoarse sound, which has been compared to that of a trumpet. Hence the French name *trompe*, which we English have corrupted into "trunk." With this organ he beats the ground when he is in pain or in a paroxysm of rage. An elephant was once burned to death in a Dublin menagerie. On examining the carcass, no trunk could be found, and it was supposed to have perished in the fire; but a closer investigation revealed the fact that the poor creature, in his agony, had driven it two feet deep into the hard ground that made the floor of his den.

The elephant, colossal as are his proportions, lives wholly upon vegetable food, of which he finds an ample supply in the luxuriant woods which he always frequents. He seems to suffer from extreme heat, and therefore it may be concluded that the dense, warm, almost stifling forests of Tropical America would be unsuit-

able to him. But the forests of Africa are comparatively cool; their glades lie open to the free passage of invigorating breezes; and in these he finds the running streams in which he loves to bathe and swim. When he approaches, we may add, the lesser animals retire, as if out of deference. An African traveller, who was resting, on one occasion, by the reedy margin of a small pool, was warned of the coming of the giants of the animal world by the uneasiness of the animals that happened to be drinking at the time. The giraffe, he says, began to sway his long neck to and fro; the zebra uttered subdued and plaintive cries; the gnu glided away with noiseless step; even the ponderous and contentious rhinoceros paused in his heavy walk to listen—then, turning round, listened again—and when satisfied that his suspicions were correct, cautiously withdrew, venting his terror or his rage by one of his vicious and peculiar snorts.

The elephant has a large brain, and his intelligence apparently approaches the very borders of reason. He is capable of comparison; to some extent, of reflection; and his memory is tenacious. The late great Duke of Wellington was accustomed to relate an anecdote in illustration of the animal's sagacity.

Elephants, in the Indian campaigns, are used for the conveyance of stores or artillery. The duke had occasion once to send his men through a river upon some of these huge steeds. A drunken soldier fell off, and was carried down by the torrent until he scrambled up a rock in the middle of the stream. The duke sent the elephant after him, and with large strides the animal obeyed his driver's

orders. When arrived, he could not get near the rock, and he stiffened his tail to serve as a plank. Finding that the man was too drunk to avail himself of it, the elephant seized him with his trunk, and notwithstanding the resistance he made, and the many blows he bestowed on that sensitive part, placed him on his back.

ELEPHANT-HUNTING.

Hunting elephants is a somewhat exciting pastime. If the behemoth turns upon his pursuer, and the latter cannot escape, death is inevitable. He never fights with his trunk, and he uses his tusks mainly as defensive weapons; but his reliance is chiefly on his enormous weight, the pressure of his foot being sufficient to crush any opponent whom he has first prostrated by means of his trunk.

In South Africa the elephant-chase is generally pursued on horseback. The Dutch boers, some of whom obtain their living exclusively by this sport, are remarkable for their skill and coolness. They make periodical trips into the uninhabited regions, or into any part where the elephants are numerous and the country is open and exposed. On catching sight of a herd, they arrange their plan of attack: either to drive the herd of game into a more favourable country, or to prevent them from retreating to any dense covert near at hand. When all their preparations are completed, they single out the leader of the troop —generally the largest bull-elephant. Then they move up as close as is consistent with safety, and pour in a volley, while their attendants harass the infuriated animals with darts. If the leader falls, the remainder are managed

with tolerable ease, from the confusion that always prevails when the herd miss their chief. But should he be wounded only, he frequently turns savage, and charges with a tremendous rush. The boers mount their horses in a second, and away they gallop; then separate, scatter about in different directions, firing at the elephant as opportunity offers. Success generally rewards their courageous perseverance. Veteran hunters affirm that they have frequently seen a herd stand with heads close pressed together, after their leader had fallen, as if overwhelmed with despair.

When a large herd is but seldom disturbed by man, but on each visit five or six are killed, and two or three more perish of their wounds, the remainder exhibit a great dread of the smell of man and of the report of musketry. When elephants are disturbed very frequently, and only one shot obtained at them, which simply wounds and annoys, they grow very furious and vindictive. Woe to the unfortunate hunter who falls into their power! Unless mounted on horseback, escape is almost impossible; as, owing to his enormous weight, the elephant easily crashes through the forest-growth, beating down every obstacle, while the hunter finds himself impeded at every step.

But we must turn from the pachyderms to other forms of animal life; and the reader will probably be of opinion that our attention should before now have been given to

THE "KING OF BEASTS."

The claims of the Lion to this proud title are not acknowledged, however, by modern travellers and natural-

ists; and the lion as we see him in poetry, and the lion as he is in reality, would seem to be two widely different animals. His generosity is denied; his magnanimity is ridiculed; his courage is doubted; even his roar is spoken of contemptuously. The lordly and majestic quadruped of the poetical imagination turns out to be rather a commonplace beast than otherwise.

He is thus described by Dr. Livingstone, one of the most sagacious, as he was one of the most enterprising, of modern travellers.

The African lion, he says, is somewhat larger than the biggest dog; and the face partakes very strongly of the canine characteristics. If you meet him in the day-time, he gazes at you for a second or two, then turns slowly round, walks away in a leisurely manner for a dozen paces or so, quickens his step to a trot until he thinks he is out of sight, and then gallops off like a greyhound. As a rule, if not molested he never attacks man in the daylight; but darkness gives him courage. When the moon shone, Livingstone seldom tied up his oxen, but let them lie loose by the waggon. On a dark, rainy night, however, if there were a single lion in the neighbourhood, he was almost certain to make an attempt upon the cattle.

Except when he is wounded, his approach is always stealthy. So strong, however, is the parental feeling, that a lion with whelps will confront almost any danger. Cross where the wind blows *from* you *to* the animals, carrying your scent, and both lion and lioness will rush at you. In such a case your chance of escape will be but small.

When a lion is mad with hunger, and lying in wait for

prey, the chance appearance of any animal whatever seems to excite him to pursue it. A hunter who was warily crawling towards a rhinoceros happened to look behind him, and discovered, with feelings of very unpleasant surprise, that a lion was stalking *him!*

The lion, like other animals of the feline species, is very suspicious of trap or ambush. A runaway horse was brought to a halt by his bridle being entangled in the stump of a tree. For two days he remained a prisoner; and when found by his owner, the ground all around him was marked by the footprints of lions. They had been afraid to attack the haltered horse, from a suspicion that he concealed or was connected with some ingenious pitfall or snare.

From careful observation, and from all he had learned during a long experience, Dr. Livingstone saw no reason for ascribing to the lion either the ferocious or the noble character ascribed to him in books. He is cowardly, mean, and cruel. He preys chiefly upon defenceless animals; and frequently, if he seizes a buffalo calf, the mother rushes to the rescue, and overpowers and kills this miserable "king of beasts." It is on record that a herd of buffaloes defended their young from a whole company of lions by simply confronting them with levelled horns. And a toss from a bull will slay the strongest lion that ever breathed.

Even his roar seems to be something of an imposition, being so similar to the note of the ostrich as to render it difficult for the European to distinguish the one from the other.

Having thus placed before you a picture of the dethroned king of the animal world, and painted his true character, we may narrate one or two incidents in which he figures as pursued or pursuer, hunted or hunter. Turning to Dr. Livingstone's graphic pages, we may learn with what feelings a man finds himself in the clutches of this formidable animal; for formidable he is when irritated or hungry.

Dr. Livingstone having fallen in with a lion, fired two bullets at him, which did not take immediate effect. The traveller at the time was standing upon a little knoll. The lion caught his shoulder as he sprang, and both came to the ground below together. Growling horribly close to Livingstone's ear, he shook him as a terrier-dog does a rat. The shock produced a stupor, similar to that which a mouse apparently feels after the first shake by a cat. It caused a sort of drowsiness, in which there was neither sense of pain nor feeling of terror, though the traveller was quite conscious of all that was happening. It was like what patients partially under the influence of chloroform describe as their sensations, when they see all the details of the operation, but do not feel the pain of the knife. This singular condition did not result from any mental process; the shake had annihilated fear, and allowed no sense of horror in looking round at the beast. As Livingstone acutely suggests, it may probably be produced in all animals killed by the carnivores. If so, it is a merciful provision by the all-wise and all-merciful Creator to lessen the pain of death.

Turning round to relieve himself of the animal's weight,

LIVINGSTONE AND THE LION.

as one paw rested on the back of his head, Livingstone saw the creature's eyes directed to Mebalevé (a Hottentot attendant), who was trying to shoot him at a distance of ten or fifteen yards. His gun, a common one, missed fire in both barrels. The enraged lion immediately abandoned

Livingstone, and attacking Mebalevé, bit his thigh. Another Hottentot attempted to spear the lion while he was biting Mebalevé. Quick as thought, the animal turned upon this new assailant and caught him by the shoulder; but at that very moment the bullets he had received took effect—he fell down dead.

THE ARABS AND THE LION.

The Arabs wage a constant warfare against the lion; and the wandering tribes have good reason to hate him. He carries off their young cattle and their poultry; even their children are not safe. When it is known, therefore, that a lion is in the vicinity, the hunters immediately prepare to undertake a campaign against him.

Proclamation is made in the public place that on a certain day, and at a certain hour, horsemen and foot-soldiers—all men, in fact, who are both able and willing—shall assemble, with arms in their hands, at an appointed rendezvous.

Meanwhile the lion's lair is carefully reconnoitred; and on the day of the chase the little army sally forth in gallant array to conquer their enemy. The foot-soldiers lead the van, and on arriving within five hundred paces of the thicket where he lies concealed, they halt, close their ranks, and form into three lines, the second line ready to fill up the intervals of the first should it be necessary; the third, which contains the best marksmen, being held as a reserve.

Now begins a curious scene. The men in the front line lavish unmeasured abuse on their enemy, and even fire a

few scattered shots into his ambush to provoke him to the encounter. "There," they exclaim, "there is the fellow who thinks himself brave! Yet he has not the courage to show himself before men! He is no lion, not he; he is simply a cowardly thief: may a curse be upon him!" The reproach is hardly fair, considering that the proportion of numbers is about fifty to one.

Meantime the lion, who is often plainly visible in his leafy retreat, glances quietly around, and yawns, and stretches his limbs, apparently regarding with the utmost indifference the cries and shouts of his assailants. It is not until a chance shot strikes him that his blood is aroused; then, shaking off his instinctive dread of man, he sallies forth. He roars; he rolls his burning eyes; he recoils; crouches; rises again; and springing forward, crashes right through the intertangled twigs and branches.

The front rank discharge their arms; the lion makes one terrible bound—to fall, generally, under the fire of the second rank, who have stepped into the open places between their comrades. The moment is critical, for the lion never ceases to struggle and menace until a ball strikes him in the heart or brain. He has been known to continue the combat with ten or a dozen bullets in his body; and the foot-soldiers seldom bring him to the ground without some of their number being killed or wounded.

The Arabs have noticed that the day after he has made a full and satisfactory repast, the lion, engaged in the slow work of digestion, keeps within his lair, indolent, incapable of motion, and frequently asleep. If any district usually disturbed by his roar is for a whole night free from alarm,

it is concluded that the disagreeable neighbour is sleeping off the effects of a bout of gluttony. Then some hunter, more daring and experienced than his fellows, will stealthily follow up the track until he reaches the lion's lair, when, taking cool and careful aim, he kills him outright, by lodging a bullet between the eyes.

THE LAND OF ANTELOPES.

Animal life is so abundant in Tropical Africa that the lion is never in want of prey. But, before all and above all, it is the land of Antelopes. Some species or other of these graceful creatures may be found in almost every district. The luxuriant pastures supply them with food, and they quench their thirst in the numerous springs and streams which contribute their waters to the great lakes or rivers. In thicket, copse, and wood they obtain shelter; and they find ample space for their large herds to roam at will in the open plains. They are of every size, from the pigmy antelope, not much larger than a hare, to the eland, which is larger than an ox. They are all characterized by timidity, the result of the persecution they have suffered for ages at the hands of so many enemies. Most species are gregarious, and their herds are so large that it is impossible to count them. Like all animals which feed in groups, they place some of their number on the watch; and their safety compels them to adopt this precaution, as they have no means of defending themselves but by flight. Foremost among their foes is the lion, which hides among the reedy growth on the bank of the crystal stream, and springs upon his victim as he stoops to drink.

In many respects the antelopes resemble the deer, but they are *not* deer. They differ from them particularly in the character of their horns, which are hollow at the base, and grow out of a solid core, like those of oxen. They do not shed them, as the deer do, but retain them throughout life.

Gracefulest among the graceful is the beautiful Gazelle, which frequents the plains and valleys of Northern Africa in numerous herds. It has such large, tender, and lustrous eyes, that when the Arab poets wish to compliment a lovely woman they compare her eyes to those of a gazelle.

The swiftness of this beautiful creature is extraordinary; and it speeds across the plain at a rate which defies the pursuit of the lion—whose only chance is when he can contrive to steal upon a pasturing herd without alarming the sentinels.

The traveller wending his way across the sunny plains of Southern Africa frequently discovers in the distance "a dense living mass" of the antelopes known as the Springbok, pouring along the rising ground in steady order, and proceeding in search of "fresh woods and pastures new." Such migrations are characteristic of these animals; and they ravage the country through which they pass almost as completely as a flight of locusts.

The springbok owes its name to its habit of moving forward in a succession of extraordinary leaps when it is alarmed. It leaps to a height of seven or eight feet in the air without any difficulty, and can accomplish even twelve or thirteen feet. When taking these bounds its back is

SPRINGBOK.

greatly curved, like an Australian boomerang. Yet there is no appearance of effort, and the movement seems performed with the greatest ease.

It is needless to say that the springbok herds are thinned by the attacks of numerous enemies as they move from point to point,—lions, hyenas, leopards, and jackals, —to say nothing of man, by whom the animal is hunted for the sake of its flesh.

In the dry and sunny districts we meet with the Gemsbok, or Gemsbuck, which is so fashioned by nature that it can almost entirely dispense with water. But animals which can live without water cannot live without moisture; and this the gemsbok obtains, like the koodoo and the dinker, by feeding upon juicy bulbs and tubers,

which it digs out of the ground with its sharp-pointed hoof. Thus it is enabled to thrive in barren regions, where it would seem that not even a locust could find subsistence.

The gemsbok is about as large as our domestic ass, and measures nearly four feet at the shoulders. It wields its massive horns as weapons of defence with so much skill and courage, that it not only beats off the smaller beasts of prey, but will frequently encounter and defeat the lion.

Captain Burton, describing the scenery of the Mgeta valley, speaks of "a fine park country, peculiarly rich in game, where the calabash and the giant trees of the seaboard gave way to mimosas, gums, and stunted thorns. Large gnus, whom the porters regard with a wholesome awe, declaring that they are capable of charging a caravan, pranced about, pawing the ground, and shaking their formidable manes; hartebeest and other antelopes clustered together on the plain, or travelled in herds to slake their thirst at the river. The homely cry of the partridge resounded from the brake; and the guinea-pods looked like large blue-bells upon the trees. Small land-crabs took refuge in the pits and holes which made the path a course of frequent accidents; while ants of various kinds, crossing the road in close columns, attacked man and beast ferociously, causing the caravan to break into a halting, trotting hobble, ludicrous to behold."

In this lively picture we find reference made to two of the best-known and most interesting species of antelopes, the gnu and the hartebeest, both of which range over a

very wide extent of country in Southern Africa, from Lake Ngami to the Cape of Good Hope.

The Gnu is a singular-looking animal; for it has the head and horns of a bull, the mane of a horse, and the body and limbs of an antelope. Its tail is long, and clothed with hair; the horns are first bent downwards, and then again upwards, with a bold curve. It is a gregarious animal, fond of the society not only of its own kind, but

GNUS.

of giraffes, and ostriches, and zebras, which all roam about together in one immense mixed herd. Its disposition is as characteristic as its appearance; for it is extremely suspicious, curious yet shy, and timid though irritable.

When frightened by any strange object, it begins to whisk its long white tail with eccentric rapidity, then

takes a sudden leap into the air, and alighting on the ground, begins to paw and curvet like a frisky horse. It and its neighbours then chase each other in circles at their utmost speed; and when they halt to inspect the intruder, some of the bulls will often engage one another in the most violent manner, dropping on their knees each time they come in collision. Finally, they wheel around, kick up their heels, give their tails a final flourish, and scamper across the plain in a cloud of dust, as if pursued by some torturing demon!

The hunter avails himself of the curiosity of the gnu, as the Eskimo does of that of the seal, to bring about its capture. He hoists a red rug on a stick or on the muzzle of his gun, and throwing himself on the ground, awaits the result of his stratagem. At first the gnu rushes off at full speed, as if seized with some sudden paroxysm; but soon its curiosity prevails over its fear. It turns; it trots towards the unusual object; it retires; it wheels round and round; it draws nearer; and at last advances close enough for the hunter to deliver a mortal shot.

The stateliest of the antelopes, however, is the Koodoo; a "truly magnificent creature," though not more than four feet high. But its much-twisted horns are nearly three feet long; and its fine stalwart body is boldly marked with streaks and bars of white on a reddish-gray ground. It possesses great strength and agility, being able to spring ten feet from the ground without effort, and when affrighted running with considerable speed. It is very wary and suspicious, and loves to frequent the lonely

plains in small herds of five or six, which find pasturage among the low short brushwood. Its flesh is held in high esteem, and the marrow of the principal bones is as much a delicacy on the African table as turtle-soup on the civic board of the London Corporation. Its skin is valuable, and makes superior shoes, thongs, whip-lash, and harness.

It may be conceded, however, that the flesh of the Eland is superior to that even of the koodoo. This is the largest of the African antelopes. It measures six feet high at the shoulders, and its body is as bulky as that of an ox. Consequently, the hunters find it an easy prey. The eland, like the gemsbok, can live without water for a considerable time, even where the herbage is as dry as powder; but it eats largely and frequently, and the expense of its fodder has hitherto been the principal obstacle to its domestication in England.

BUFFALO-HUNTING.

The chase of the antelope, whatever the species, seldom affords the excitement that comes of danger. But such is not the case in buffalo-hunting, which frequently involves considerable peril both of life and limb. The late Captain Speke has left on record an account of one of his own experiences, which shows that the hunter should be endowed with both courage and coolness.

He was travelling in Ugogo, accompanied by two native boys, when, early one morning, he plunged, intent upon game, into the wilderness of Mgŭnda Mkali. Then, after walking a short time in the bush, he heard the grunt of a

buffalo close on his left; seized his rifle, and hastened onward until he came in sight of a large herd quietly feeding. They were quite unconscious of his approach, so he shot at a cow and wounded her; then, after reloading, put a ball in a bull, and staggered him also. This, not unnaturally, caused great confusion in the herd; but as none of the animals knew from what quarter came the shots, they simply shifted about uneasily. Thus Captain Speke was able to kill the first cow, and even to fire a fourth shot, which sickened the great bull, and induced him to trot away, leaving the herd to their fate. Perplexed and distraught, they, too, began moving off.

Captain Speke now called up the boys, and determined on following the herd before he skinned the dead cow or tracked the bull, which, he knew, could not go far. Their footprints being clearly defined in the moist sandy soil, the herd were soon found again; but as they now knew they were pursued, they continued to retreat in short runs at a time, when, occasionally gaining glimpses of their large dark bodies as they crashed through the bush, the captain repeated his shots, and struck a good number, some more and some less severely. This, he says, was exceedingly provoking; for all of them being stern shots, were not *killing* shots, and the jungle was so dense, he could not obtain a front view of the "game." Presently, however, one with her hind limb broken halted on a white-ant hill, and, tossing her horns, suddenly rushed down upon her persecutor the moment he showed himself. One discharge of the rifle, and she fell dead.

Returning to his first point of attack, Speke then fol-

lowed up the blood-trail of the first bull, and found him standing alone in the brushwood, evidently in great pain. Out of a compassionate desire to put an end to his miseries, Speke levelled his rifle; but, unfortunately, a bough intercepted the flight of the bullet, which whirred harmlessly through the air, while the buffalo went off at a gallop. There was no difficulty in following him up, for the trail was distinct and clear; and in two minutes more, as the captain entered upon a small clearance, the great beast, from the thicket on the opposite side, charged down like a mad bull, full of ferocity—as formidable an antagonist as can be imagined, for the front of his head was all shielded with horn. It was fortunate for Captain Speke that between him and his adversary rose a small mound. As the buffalo rounded it, Speke sprang aside and fired at his flank, but without checking his furious onset. As quick as thought the huge monster was at his feet; confused, however, by the smoke of the rifle, which fortunately hung so thick on the ground at the height of his head that he could not see his enemy. This was, indeed, a perilous predicament for our gallant explorer. Both the boys had fled, carrying with them his guns, and he was literally at the mercy of the infuriated beast. But suddenly the latter, evidently regarding the smoke as a phantom not to be mastered, wheeled round with a hasty movement, and galloped off at full speed, as if scared by some terrible apparition. Thus Speke was saved.

There can be no question that the buffalo is a dangerous animal, for his ferocity is equal to his strength, and he does not wait to be attacked. Woe to the unsuspicious

traveller who passes by his solitary lair in marsh or thicket, and is not prepared to resist his charge! He breaks out upon him with a sudden leap, tosses him in the air as if he were a straw, then kneels upon the prostrate body and crushes out the vital spark, and finally butts at the corpse as if unable to satisfy his ferocious rage.

His flesh is so coarse as to be of little value as an article of diet, but his hide is much sought after, because it supplies a tough and durable leather.

THE ZEBRAS.

The buffalo has a wide range in the African plains, but the Zebra, one of the most beautiful of African quadrupeds, is found in the mountainous districts only. It resembles the horse in shape, but is much handsomer in appearance, —its white body being elegantly marked by narrow bands of black. It is supposed to be the *hippotigris*, or tiger-horse, of the ancients; and no doubt the supposition is correct, as it even now approaches the former boundaries of the Roman Empire in Africa, and probably in ancient times reached the coast of the Mediterranean. It is a shy, wary, and obstinate animal; but there seems no reason why it should not be domesticated in Europe. In its native regions it prefers the loneliest and wildest localities, where it grazes, along with its fellows, on the steep declivities; sentinels being posted on the most elevated rocks to give notice of the approach of an enemy. The signal is a loud melancholy neigh; whereupon, with pricked ears and tails whisked to and fro, the whole herd gallops off to some remote spot. Strange to say, it permits the gnu to occupy

the same feeding-grounds, and troops of gnus and zebras generally mingle in one immense herd.

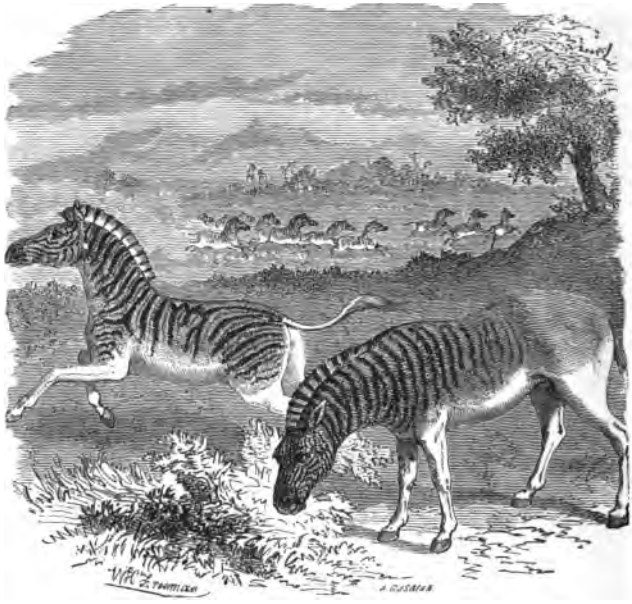
The same is true of the Douw or Burchell's Zebra,

ZEBRA.

which is finely adorned over the whole of its body with broad black bars on a ground of pale yellow.

It is the opinion of an African traveller that this species, if tamed and domesticated, would make the best pony in the world; because it combines comeliness of figure with solidity of form, is sure and yet swift of foot, and unites large bones and considerable muscular power to easy and

graceful action. It is not easily captured, however, so keen are its senses of sight, smell, and hearing. Its gaze is arrested by the slightest noise or movement, or by the



DOUW AND QUAGGA.

appearance of any unfamiliar object. It stops, it listens intently; and if its suspicions are confirmed, it hastens afar at a speed that almost defies pursuit. So, too, any odour in the air will immediately be perceived by its olfactory organs.

It knows by instinct that in union consists strength. Hence it associates with its fellows in a compact body

when danger threatens either from man or beast; and should the foe overtake them, they fall into an orderly array, with their heads together in a close circular band, presenting their heels to the enemy, and dealing out a constant succession of formidable kicks.

Closely allied to but less striped than the douw and zebra is the Quagga—all three belonging to the horse family. It roams in immense herds on the plains of Central Africa.

THE FORESTS ON THE WEST COAST.

Wandering now into the great forests on the west coast, we enter the home of the gorilla and the chimpanzee; those remarkable apes which, in some respects, approach so nearly to mankind, and yet are in reality separated from us by a gulf that must always be impassable.

In the midst of Tropical vegetation, says a popular writer, the Simiæ, or monkey tribe, lead a free forest-life. The green canopy of the woods protects them at every season of the year from the burning rays of a vertical sun, flowers deliciously fragrant perfume the air they breathe, and an inexhaustible supply of fruits and nuts preserves them from the pangs of want; for when the stores near at hand are exhausted, they have but to migrate to some other district to secure a fresh abundance. With an agility far surpassing that of the sailor, they leap from climbing-plant to creeper, from bush-rope to liana, and from bough to bough, mocking the tiger-cat and the boa, which are unable to follow them in their daring movements. The picture is a pleasant one, but undoubtedly it is too highly

coloured. Even in the Tropical forest it is not always summer; and the simiæ must suffer exceeding discomfort from their exposure to the heavy Tropical rains.

Man is the only animal that walks erect. The chimpanzee sometimes descends to the ground, and adopts for a time an upright position—just as the bear does when trained to shuffle through an awkward dance by the travelling showman; but in both cases the position is obviously constrained and unnatural. With head bent forward, and hands placed on his loins or behind his head, in order to preserve his balance, the chimpanzee drags one shambling limb after the other, soon growing spent and weary, and glad of any artificial support. It is only necessary to look at the robust fore limbs, and compare them with the shorter and feebler hind feet, to see that an erect position is for him an abnormal position, and that he is as little at home on the ground as the seal or walrus. He is himself—master of his movements—able to use his limbs freely and his energies profitably—only in the tree.

Of all the apes, the Chimpanzee, or "Man of the Woods," approximates most closely to man. He frequents the warm, dense forests of the Gaboon river, the coast of Angola, and Guinea. From all the other simiæ he is separated by one proud distinction,—he has calves to his legs! His face, however, is flatter as well as larger than that of the orang. His ears are large, but shaped like those of the human race. His head, shoulders, and back are clothed with a coat of long black hair; his legs are short and weak; his arms long and strong; yet he

walks erect with more ease than any other of his kind. He has neither tail, nor pouch, nor callosities; but his forehead is low and receding, the mouth is wide, the face of a blackish-brown colour, and a bony ridge rises prominently over the eyebrows. The hair of the head is roughly parted on the top, and falls down on either side of the face, surrounding the ears and jaws, and mingling with that of the neck.

The tallest chimpanzee would be a human dwarf, as his stature never exceeds four and a half feet; but he seems even shorter, because he never stands absolutely erect. As he grows in years, his limbs shrink; at the same time the muzzle lengthens, the jaws develop, the skull becomes more depressed. An alteration also takes place in the creature's character. He grows fiercer, and all the instincts of the brute exhibit themselves.

The chimpanzees, it is said, live in small troops in the forest; association being forced upon them, perhaps, as a defence against the attacks of beasts of prey, while it enables them also to drive from their domains such other animals as may attempt to effect a settlement therein. Their weapons are stones and the branches of trees. Their diet is chiefly fruits and nuts; but they occasionally diversify it with a lizard, or some other reptile. Like the orangs, they make up rude beds or couches of interwoven boughs stripped of their foliage.

It will be seen that the chimpanzee has no pretensions to beauty; yet he is far less hideous than the terrible Gorilla, which is equally remarkable for his deformity and his ferocity.

This formidable animal appears to be confined to the hot, wooded regions of Lower Guinea; in the remotest recesses of which he shuns the approach of man, and repels the aggressions of the carnivores. There can be no doubt as to the ferocity of his disposition, and the hunter finds in him a resolute adversary; but we do not think it proved that he ever assumes the aggressive. The negroes, however, regard him with extreme dread, and he is the hero of a hundred terrible stories—which is not to be wondered at, when we consider his astonishing strength and the hideousness of his appearance.

GORILLA.

His natural gait is a creeping, swinging motion on all-fours; in which posture, owing to the length of his fore limbs, his head and chest are much elevated. In running, he brings up his hind limbs under the body; and the arm and the leg on the same side move simultaneously. Awkward as his mode of progression appears, he contrives to cover the ground with great rapidity.

We owe our knowledge of the habits of the gorilla chiefly

to Mr. Winwood Reade and M. Du Chaillu. The latter thus describes his first encounter with one of these extraordinary and formidable animals :—

"The under-bush swayed rapidly just ahead, and presently before us stood an immense male gorilla. He had gone through the jungle on his all-fours, but when he saw our party he erected himself, and looked us boldly in the face. He stood about a dozen yards from us, and was a sight, I think, I shall never forget. Nearly six feet high (he proved four inches shorter), with immense body, huge chest, and great muscular arms, with fiercely-glaring, large deep-gray eyes, and a hellish expression of face, which seemed to me like some nightmare vision,—thus stood before us the king of the African forest. He was not afraid of us, and gave vent to roar after roar. The roar of the gorilla is the most singular and awful noise heard in these African woods. It begins with a sharp bark like an angry dog, then glides into a deep bass roll which literally and closely resembles the roll of distant thunder along the sky —for which I have sometimes been tempted to take it when I did not see the animal. So deep is it that it seems to proceed less from the mouth and throat than from the deep chest and vast paunch. His eye began to flash deeper fire as we stood motionless on the defensive, and the crest of short hair which stands on his forehead began to twitch rapidly up and down, while his powerful fangs were shown as he again sent forth a thunderous roar.

"And now truly he reminded me of nothing but some hellish dream-creature; a being of that hideous order, half man, half beast, which we find pictured by old artists in

some representations of the infernal regions. He advanced a few steps, then stopped to utter that hideous roar again; advanced again; and finally stopped when at a distance of about six yards from us. And here, just as he began another of his roars, beating his breast in rage, we fired at him and killed him. With a groan which had something terribly human in it, and yet was full of brutishness, he fell forward on his face. The body shook convulsively for a few minutes, the limbs moved about in a struggling way, and then all was quiet—death had done its work."

He is an animal, moreover, of great cunning and intelligence; but how far this intelligence is from human reason a simple illustration will prove.

If he comes upon the embers of a fire which has been kindled by some negro or traveller, their warmth and brightness afford him the utmost gratification. He sits down beside them, and as they flicker and fade, draws nearer, and yet nearer, to the vanishing miracle. For a miracle it is to him. It never occurs to him to replenish the fire with fresh fuel, though he must probably have seen the action performed by hunters during the night, as they gather round their bivouac. He has no power of comparison or reflection; the intelligence of the beast is essentially inferior to the understanding of the man.

If he makes an inroad into a sugar-plantation, his instinct leads him to bite off a number of the canes, and twist them into a fagot for easier conveyance; but often he includes in his plunder several of the *growing* canes, and then he is perplexed to find that he cannot carry away the fagot he has made with so much labour.

To Africa belongs the group of monkeys designated by the imposing name of "Cercopitheci,"—which signifies "long-tailed apes." These are tolerably well-known in England; the pitiful-looking creatures which are forced to accompany our itinerant musicians in their rambles being mostly of this class.

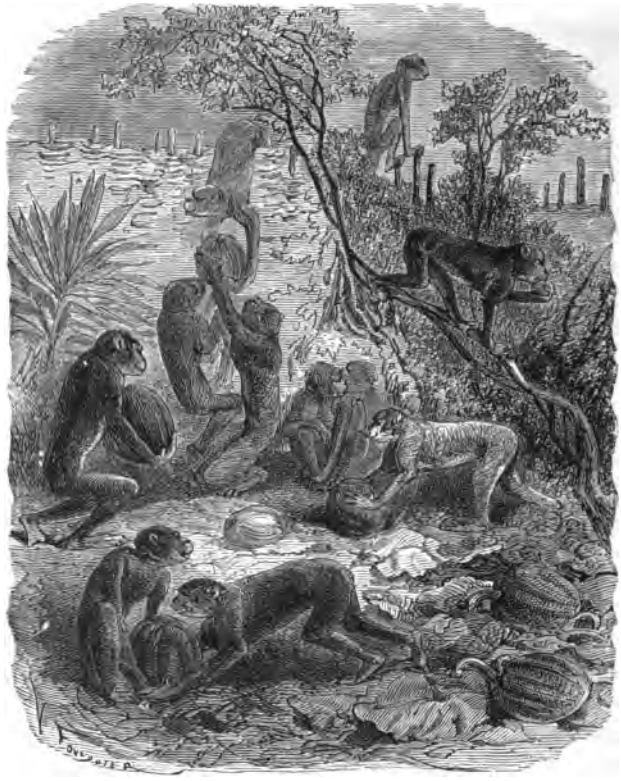
We pass on to

THE BABOONS, OR DOG-HEADED MONKEYS,

whom it is difficult to regard with any other feeling than that of disgust. Not only are they repulsive in aspect, but disgusting in their habits; while their cunning is profound, and their temper morose. In their gait they approach nearer to the true quadrupeds than any of the animals hitherto mentioned, and their general mode of progression is on all-fours. They rarely assume an erect position. When at rest, they sit in the usual monkey fashion; when they move, they walk like a dog. And yet with a *style* that is all their own—a kind of jaunty swagger and impertinent carriage, that reminds one of a London *gamin* when mimicking the manner of some pretentious fop!

One of the most dangerous of these baboons is the Chacma. It belongs to South Africa, where the Dutch boers sometimes hunt it down with specially-trained dogs. It is, perhaps, the most consummate robber in the universe; a perfect adept in all kinds of burglary and spoliation—now exhibiting the most supreme audacity, and now the most subtle craft. They join together to execute their depredations, and plan their raids with all the forethought

and carefulness of accomplished human thieves. In vain does the farmer station his most experienced dogs as



BABOONS PLUNDERING A GARDEN.

sentinels; the chacmas steal past them unobserved, not a sound indicating their presence. One or two of the oldest and cleverest robbers take the lead, glide past the sentinels,

and climb over the orchard fence, or force their way through some forgotten gap. Their companions, meantime, arrange themselves *en queue*, forming a long line from the scene of the burglary to their remote retreat. The leaders begin to collect the fruit, or bite off the stalks, which they then hand to the nearest comrade, who passes it on to the next, and he to a third; and thus the spoil is handed from one to the other until it is safely deposited at headquarters. When a sufficient amount of booty has been collected, the robbers retire as stealthily as they came, and proceed to indulge themselves in a nocturnal repast, sweetened by the consciousness of triumphant skill! Not that the whole of the spoil ever reaches the general store! Each baboon, as the welcome plunder comes into his hands, is careful to appropriate a small portion to his individual benefit, before he passes it to his neighbour.

The Dutch boer, however, frequently makes the chacma recompense him for the losses he sustains by these raids. He avails himself of the instinct which enables the animal to discover a variety of edible roots and tubers, and the still more precious faculty by which, in the burning wastes of the sun-scorched desert, it traces the concealed spring.

When the desert wells have failed, as in seasons of drought they frequently do, the settler shuts up his tame chacma for a whole day without water, feeding it on salt provisions. When it is furious with thirst, it is released, and, a long rope being attached to its collar, is allowed to move in what direction it pleases; followed by a whole company, perhaps, yearning to slake their thirst.

The chacma hastens onward, now turning to the one side and now to the other, sniffing the air, taking careful note of the quarter from which the wind blows, and guiding itself by other signs which human intelligence fails to detect. In this way it proceeds, with untiring patience and perseverance, until it arrives at some tiny bubbling rill or miniature pool.

The following extraordinary story is related in illustration of the cunning and craft of the chacma.

It refers to a tame baboon, which had shown so much docility and intelligence, that its master had taught it to watch the pot in which his dinner was prepared, and was accustomed, when otherwise engaged, to commit to its charge the culinary department. One day he had determined to dine on a fowl; and having put it in the pot, and put the pot on the fire, he left it, as usual, to the care of his new cook.

For a time all went well. The animal sat still, and rejoiced while the savoury meal simmered and seethed, sending forth a delightful odour. A delightful odour!—yes; and, as it proved, *too* delightful. It so tickled the olfactory organs of the chacma, that appetite overcame conscience. It lifted the lid, picked a little bit from the boiled fowl, and put it back again. The morsel proved so enjoyable, that the lid was again lifted, and another attack made upon the fowl. The chacma's appetite grew by what it fed on; and the lid was so often lifted, and so many morsels were devoured, that at last, to the animal's consternation, nothing remained in the pot but—bones!

Conscience, now that appetite was satisfied, recovered its sway. The chacma knew it had betrayed a trust, and might expect a punishment. What was to be done?

Suddenly it occurred to the affrighted animal that there were more birds in the world than one, and that its master's dinner might yet be secured.

Now, the reader must know that the baboons, like most other monkeys, are furnished with two callosities on the hind-quarters, which serve them for seats, and, in the chacma, are of a bright red colour.

Our cook proceeded, therefore, to roll itself over and over in the dust, until the whole of its body assumed a uniform gray coat. Then it gathered itself into a heap, with its head and knees on the ground, until it looked exactly like a rough block of stone, with two pieces of red raw meat on the top. The smell of the boiled fowl had attracted a number of kites to the spot, and one of them, catching sight of the novel bait we speak of, immediately pounced upon it. In a moment the seeming block of stone became alive! The baboon uncoiled its limbs, sprung to its feet, seized the would-be plunderer, thrust it, wings and beak and claws, into the pot, and placing the pot on the fire, resumed its post of superintendent with a sublime consciousness of an offence expiated!

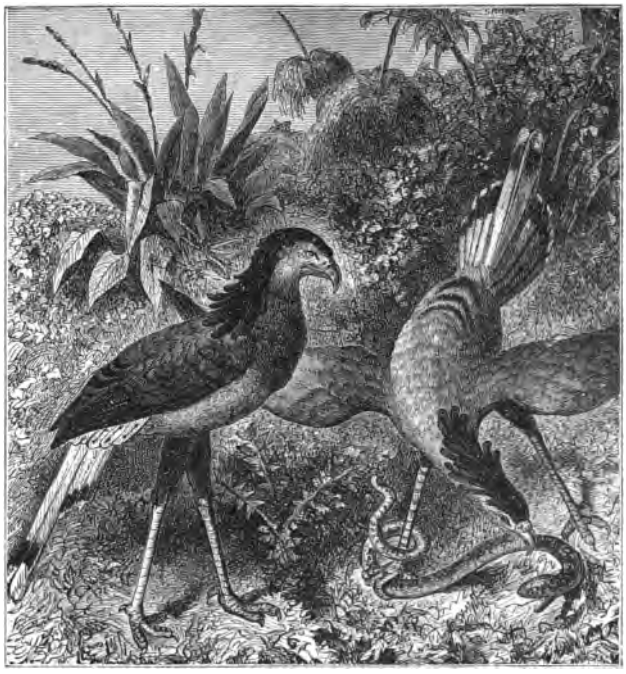
Whether its master found a boiled kite a satisfactory substitute for a boiled fowl our authority does not inform us; but we should hope that he forgave the chacma's dereliction of duty in consideration of its thoughtful ingenuity.

Another remarkable African baboon is the Mandrill, conspicuous by the patches of azure blue on each side of the nose, diversified by furrows of purple and scarlet. At certain seasons it is subject to terrible and prolonged excesses of passion, approaching almost to demoniacal fury, and at times so completely overmastering the animal that it falls a victim to its own outburst of wrath. This insane ferocity, its great strength, and its habit of associating itself with its congeners in large and formidable bands, render it an object of great dread to the natives of Guinea, who, unless well-armed, and in large numbers, will never enter the forests frequented by the mandrill.

THE AFRICAN BIRDS.

Taking leave of the mammals of Africa, we come now to a brief review of some of its principal birds.

One of the most characteristic of these is the Secretary-bird, which derives its name from a fancied resemblance of its occipital crest of feathers to pens stuck behind a writer's ear. It is also, and more appropriately, known as the Serpent-eater. In the arid plains and dry thickets which it frequents, serpents and other reptiles abound; and it does good service to humanity by the incessant warfare it carries on against them. Its feet are very strong, and armed with sharp claws. With these it strikes down its prey, and clutches it in a grasp from which escape is impossible. The larger and venomous serpents it stuns with blows of its wings; or it seizes them in its vulture-like bill, rises with them into the air, and lets them drop from such a height that they are killed by the fall.



SERPENT-EATERS.

Another well-known African bird is the Ibis, which also has a claim to be enrolled among the friends and allies of man. As the secretary-bird keeps down the increase of dangerous forms of life in the burning plains, so the ibis checks the too rapid multiplication of worms, insects, frogs, water-lizards, and the like, in marshy places and on the banks of lakes and rivers. In the scenery of the Nile valley it forms a frequent object, and may be seen perched on the decayed trunk of a tree borne slowly downwards by

the yellow stream, and ever and again pouncing upon an unfortunate fish. Or, its hunger satisfied, it will be found, with its heavy bill resting upon its breast, standing erect on the lofty bough of a tree overhanging the river, appar-

IBIS.

ently asleep or indifferent to all mundane things, but really wide-awake and watchful, as the traveller discovers on moving towards it.

The Egyptian ibis was one of the sacred birds of ancient Egypt, and figures largely on the monuments; owing,

probably, to the fact that it makes its appearance in Egypt as soon as the waters of the Nile begin to rise, and departs when the waters have subsided.

A bird similar in its habits to the ibis is the familiar Stork, which passes the summer in the Temperate latitudes of Europe, and in the winter migrates to the sunny regions of the south. In the towns of Egypt it frequently builds its nest on the housetop; in the open country it seeks out the hollow stump of a tree. The stork, like the robin, shows a decided partiality to the neighbourhood of man, and stalks through the crowded streets of large towns, feeding upon their offal or carrion, and completely undisturbed by the current of passengers.

Returning to the forests, we may follow the Honey-guides, or indicators to the nests of the wild bees, which in the trunks of the tall trees treasure up their honeyed stores. These birds chiefly feed upon honey, and sometimes lose their lives in too eager pursuit of it—being stung to death by the angry guardians of the hives. They cannot fly well, but, like the woodpeckers, run up and down the trunks and branches with the utmost alacrity. They build no nests, but, like the cuckoos, avail themselves of the homes of other birds,—notably of the woodpeckers and orioles.

It is said of the White-beaked Honey-guide, that when unable to procure the sweet spoil to which it is so partial, it summons man to its assistance, and indicates the locality of the bees by the constant iteration of a peculiar cry,

resembling the words *wicki, wicki* (the Hottentot for honey). In the African wilderness this cry may be heard both morning and evening; and the natives, on hearing it, reply in a similar tone, and then hasten in the direction indicated. As soon as the bird descries them, it perches on the tree in which a hive is concealed; and should not the honey-

HONEY-GUIDE.

hunters advance with sufficient celerity, flies to meet them, and, by fluttering backwards and forwards, endeavours to entice them to the concealed treasure. The hunters, after they have collected the contents of the hive, never fail to leave a sufficient portion as a reward for their feathered guide.

The nest of the Red-billed Tocko, or Korwé, a bird closely allied to the hornbill, presents some remarkable details. The female selects for her breeding-place a hollow in the mopane-tree. As soon as she has taken up her quarters in it, the male obligingly plasters up the entrance, leaving only a small slit, of the exact shape of his own beak, through which he supplies her with food. The female makes a nest of her own feathers, lays her eggs, carefully hatches them, and watches over the young until they are full-fledged. The time thus occupied varies from two to three months, during which the assiduous husband and father provisions both his spouse and her offspring.

WEAVER-BIRDS AND NESTS.

The Madagascar Weaver-bird may be mentioned in this connection, on account of the skill with which it

builds its nest—generally at the extremity of the leaves of a tree on the bank of a rivulet. Its materials are straw and rushes, which it dexterously weaves into the shape of a pouch. A long cylindrical tube depending from one side serves as a passage to the nest, the opening being at the bottom. It is the habit of this bird to return annually to the same spot, and attach a new nest to the bottom of the old one; so that as many as five nests may frequently be seen suspended in this curious fashion. Like the grosbeak, it is sociable in its habits, and it is not unusual to see five or six hundred nests attached to a single tree.

Africa is not without its birds of prey. It possesses the great Oricou, or Social Vulture, and the Egyptian Vulture, or "Pharaoh's Chicken." The latter ranges from Egypt even into Central Europe, and is found in Arabia and India. It is one of Nature's scavengers; and in the East, where sanitary science is as yet a thing unknown, its services are of the most valuable character. Seeking its food in the towns and villages, it feeds, along with the dogs and jackals, on the carcasses of animals and other putrescent filth. Hence, though curiously unprepossessing in appearance,—its plumage being constantly besmeared with ordure,—the Easterns regard it with peculiar consideration; and in Cairo legacies were formerly left by many wealthy men for the purpose of providing these vultures, and their fellow-scavengers the kites, with daily supplies of fresh meat,—for the purpose, it may be supposed, of inducing them to reside permanently in the city.

Most birds of prey are distinguished by the harshness of

their voice; but a singular exception occurs in the instance of the Chanting Falcon, or Musical Sparrow-hawk of South Africa. Morning and evening, while his mate is engaged in the labour of incubation, he pours forth his melodious song, as if to soothe and entertain her. He is a bold, active, and ferocious bird, carrying on an unintermittent warfare against the smaller inhabitants of the forest-shades, in which it loves to take up its abode.

With this review of some of the principal African birds, we pass on to a brief consideration of

THE INSECT LIFE OF AFRICA.

Every reader of Dr. Livingstone's "Missionary Travels" will remember the great traveller's description of an insect plague of the most formidable character, the Tsetsé fly.

It is of a brown colour, like the common honey-bee, with three or four yellow bars across the hind part of its body; the wings project beyond this part considerably, and the nimbleness of the dreadful insect is wonderful. It avoids most skilfully all attempts to capture it with the hand, at common temperatures; but in the cool air of the morning and evening it is less agile. Its peculiar buzz when once heard can never be forgotten by the traveller, if he chances to be accompanied in his wanderings by any domestic animals; for it is well known that the bite of this venomous insect is death to horse, and ox, and dog. In one journey, Dr. Livingstone, though not aware that any great

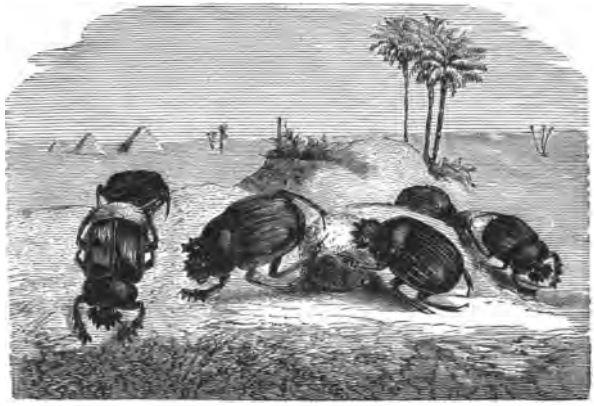
number had at any time lighted upon his cattle, lost forty-three fine oxen by their bite.

A most remarkable feature in the tsetsé's bite is its absolute harmlessness as far as relates to man and wild animals, and even to calves while they are being suckled. In the ox this same bite does not *at first* produce any more serious effects than in man. It does not startle him, as the gadfly does; but in a few days the following symptoms supervene: "the eye and nose begin to run, the coat starts as if the animal were cold, a swelling appears under the jaw, and sometimes at the navel; and, though the animal continues to graze, emaciation commences, accompanied with a peculiar flaccidity of the muscles,—and this proceeds unchecked until, perhaps months afterwards, purging comes on, and the animal, no longer able to graze, perishes in a state of complete exhaustion."

There is no cure yet known for this strange and terrible disease. If a careless herdsman suffers a herd to wander into a tsetsé district, he loses all except the calves; and a Makololo chief once lost very nearly the entire cattle of his tribe,—some thousands in number,—by unwittingly coming under its influence. The mule, ass, and goat, it is to be observed, enjoy the same immunity from the tsetsé as man and the wild animals. Many large tribes on the Zambesi can keep no domestic cattle except the goat, in consequence of the ravages of this insect scourge.

Insect life is so abundant in the Tropics that we might easily devote a volume to a description of its varieties. Generally speaking, its mission seems to be that of purifi-

cation, and its activity counteracts the evil effects of negligence and uncleanness. The Scavenger-Beetle is, in its degree, as useful as the jackal, the vulture, or the ibis; and where it abounds, the villages are sweet and wholesome, for no sooner is the air likely to be polluted by animal matter, than, attracted by the scent, the scavengers come booming up the wind. They roll away the excretions of cattle immediately, in round pieces often as large as billiard-



SCAVENGER-BEETLES.

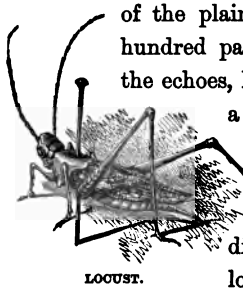
balls; and when they reach a place proper by its softness for the deposit of their eggs and the safety of their progeny, they excavate the soil from beneath the ball until it is quite below the surface; then they lay their eggs within the mass, and cover it over. The larvæ, while growing, devour the inside of the ball before they emerge into the light of day and begin the world on their own account. The beetles, with their gigantic balls, are like so many

insect-Atlases with the globe upon their backs; only they go backwards, and, with their heads down, push with the hind limbs—just as if a boy should stand on his head, and propel a snowball with his legs.

Does the reader recollect Southey's animated description of the approach of a locust-flight, in his poem of "Thalaba"? From the evidence of numerous travellers it would seem to be scarcely exaggerated :—

> "Onward they came—a dark continuous cloud
> Of congregated myriads, numberless;
> The rushing of whose wings was as the sound
> Of a broad river headlong in its course
> Plunged from a mountain summit; or the roar
> Of a wild ocean in the autumn storm,
> Shattering its billows on a shore of rocks!"

Terrible, indeed, is the advent of these depredators! They make their appearance in such myriads as literally to darken the air like a thunder-cloud; all the landmarks of the plain are invisible at the distance of a hundred paces; the noise of their wings fills the echoes, like a gale of wind rushing through a plantation of fir-trees; now they soar aloft in a compact mass, as if ordered in battle array; now, rapidly descending, they divide into scattered battalions or long columns, and sink upon the ground to satisfy their hunger. At night the whole host encamps on some green grassy place.



LOCUST.

In the morning they arise with a whirr of wings, and resume their journey; and, lo! the spot they have left is

CLOUD OF LOCUSTS.

bare and black, as though it had been scorched by the breath of fire.

A curious Arab story affirms that Mohammed once read on a locust's wing the following inscription:—

"We are the army of God: each of us lays ninety and nine eggs; if we laid a hundred, we should devour the whole earth and all that grows upon its surface."

"O Allah!" exclaimed the prophet, aghast, "thou who listenest patiently to the prayers of thy servant, destroy the young of these creatures, kill their chieftains, and close their mouths, to the end that the food of the Moslems may be saved from their teeth."

Immediately the archangel Gabriel appeared, saying, "Allah grants thee a part of thy prayer." And ever since, if the aspiration of the prophet be written on a piece of paper, and enclosed in a reed which is stuck in the ground, it suffices to preserve the surrounding area from destruction!

Mosquitoes and stinging-flies swarm in the Tropical Regions of Africa, and inflict great sufferings upon the traveller. Captain Burton, writing of the native huts in the neighbourhood of the Tanganyika, says "they are full of animal life—scorpions, ants of various kinds, whose armies sometimes turn the occupants out of doors; the rafters are hollowed out by xylophagous insects; the walls are riddled by mason-bees, hideous spiders veil the corners with thick webs, the chirp of the cricket is heard both within and without, cockroaches destroy the provisions, and large brown mosquitoes and flies, ticks and bugs, assault the inhabitants."

The same traveller gives an interesting description of the Termites, or "white ants," as they are sometimes but erroneously called.

The "Chunga Mehwa," or termite, he says, abounds throughout the moist red clay soils, and cool damp places, avoiding heat, sand, and stone; and it acts like a clearer and scavenger. Were it not for its labours, indeed, some parts of the country would be impassable. Its powers of destruction are extraordinary. A hard clay bank has been drilled and pierced like a sieve by these insects in a single night, and bundles of reeds placed under bedding have in a few hours been converted into a mass of mud; straps were consumed, cloths and umbrellas reduced to rags, and the mats used for covering the servants' sleeping-gear were, in the shortest possible time, so tattered as to be wholly useless.

Man, says Captain Burton, revenges himself upon the white ant, and satisfies his desire for animal food, which in these regions becomes a principle of action,—a passion, —by boiling the largest and fattest kind, and eating it as a relish, with his tasteless *nyali*, or porridge.

There are many circumstances connected with the termites which are fitted to arouse our wonder and our admiration.

These insects do not stand above a quarter of an inch high, yet their nests are frequently twelve and even twenty feet in height; so that the elevation of the edifice is more than five hundred times the stature of the builders; and were we to erect our houses according to the same proportion, they would be twelve or fifteen times higher than the London Monument, and four or five times higher than the Pyramids of Egypt, with basements of corresponding magnitude!

It is noticeable that the termites will not feed in the light longer than they can help, but always eat their way as rapidly as possible into the interior. They seem to construct their galleries of clay quite as much for this purpose as for the sake of security.

They are divided into distinct classes: kings and queens—that is, fully-developed males and females; soldiers, or undeveloped males; and workers, or undeveloped females.

When their hills are little more than half their usual height, the buffaloes turn them to good account by planting sentinels upon them, while the herd feeds and ruminates below in placid security. At their full elevation they serve excellently as watch-towers; and Mr. Smeathman describes it as his practice to climb to the summit of one of these hillocks to watch for a vessel coming in sight.

Most species of termites, as we have remarked, avoid the light of day, and live and forage in obscurity. But this is not the case with the marching white ant. On one occasion, when Mr. Smeathman was travelling through a thick forest, he suddenly heard a loud hissing noise like that of a serpent; then it was repeated, so that he could not help feeling some alarm; but a minute's reflection convinced him that the noise proceeded from the white ants, though he could nowhere see any of their hillocks.

On following up the noise, he was seized both with surprise and pleasure at perceiving an army of white ants issuing from a fissure in the soil, and marching along with considerable rapidity. After accomplishing about a yard, the host divided into two columns, chiefly composed of

workers, following each other in regular array, about fifteen abreast, and continually pressing forward. Here and there might be seen a soldier, whose large head seemed almost too great a burden for him to carry, at a distance of a foot or two from the columns; while others stood still, or moved to and fro, as if bent upon keeping the immense company in order, or guarding against any hostile surprise. Other soldiers—and this was the most extraordinary part of the scene—had mounted some dwarf plants, about ten or fifteen inches high, and hanging over the serried ranks that passed underneath, they struck their jaws upon the leaves at regular intervals, producing the hissing noise which had astonished and alarmed Mr. Smeathman; each time it was repeated the army responded with a general hiss, and increased their speed. During their intervals of silence the soldiers at these signal-stations remained motionless, with the exception of an occasional turn of the head. After marching apart for twelve or fifteen paces, the two columns of this army again united, and then descended into the earth through two or three holes. Mr. Smeathman watched them for upwards of an hour, without being able to discover any increase or diminution of their numbers.

The termites are regarded as capital eating by the natives of the Tropical Regions of both the Old and the New World. On one occasion Dr. Livingstone was visited by a Bayeiye chief, to whom he gave a piece of bread and preserved apricots. As he seemed to relish the dainty, Dr. Livingstone asked him if he had any such delicious food in his own country. "Ah," said the chief,

"did you ever taste white ants?" The traveller replied in the negative. "Well, if you had, you never could have desired to eat anything better!"

In South Africa the negroes collect such as have fallen into the water and roast them like coffee; thus prepared, they eat them by handfuls, and pronounce them delicious. The Indians smoke the termites out of their many-celled nests, and catching the fully-developed males and females, knead them up with flour, and make them into a kind of cake. Even European travellers agree in speaking of them as capital fare, likening their flavour to that of marrow or sugared cream. Locusts devour them greedily; so do poultry; and the insectivorous birds pursue them incessantly. It is well that such should be the case; for their numbers increase with such prodigious rapidity, that, were no limit put upon their numbers, they would oust us out of our terrestrial domain. The female termes lays sixty eggs a minute, or upwards of a thousand a day; and Smeathman thinks that her fecundity endures for a whole twelvemonth. "If all other species," says Michelet, "did not combine to destroy them, they would become masters of the world, and—what shall I say?—its only inhabitants. The fish alone would survive; but all insects would perish. The mother bee does not produce in a year as many young as the female termes produces in a day."

But we must pass on to some other forms of animal life.

It is a common error that foremost among the dangers of the Tropical forests must be ranked the presence of numerous snakes and serpents. No doubt there are

species whose sting is mortal; but it is usually the traveller's own fault if he exposes himself to such a mishap. The majority of snakes are harmless; and those which are not harmless never attack man except in self-defence. A worm, says the poet, will turn when trodden upon; and a serpent, if alarmed or irritated, will use the weapons with which nature has equipped it. We do not say that a cobra or a boa is not a formidable antagonist; but we contend that the peril to be apprehended from either has been greatly exaggerated, and that with ordinary caution it need not be incurred. The supposed power of fascination attributed to snakes is certainly a myth: if birds and other animals appear paralyzed by the appearance of these reptiles, the *real* cause is an instinctive dread and abhorrence; just as in some well-authenticated instances of persons who have seen a railway-train swooping down upon them, and, standing as if rooted to the spot, have miserably perished.

NAJA HAJE.

To Egypt and Nubia belongs the Naja Haje, a kind of cobra, which is supposed to be the asp of the old naturalists; and was the instrument of death chosen by Cleopatra, when she was fain

to avoid falling into the hands of the Roman conqueror. The Egyptians paid divine honours to it, because, as if prepared for self-defence, it raises its head erect on being approached.

In the sandy deserts are found the Cerastes, or horned serpents, famed for their venomous bite. It is with these that the Egyptian snake-charmers perform their wonderful feats,—handling them without injury, and twisting them like a wreath round their dusky necks; protected, not by their fearlessness and knowledge, as was at one time supposed, but by the removal of the poison-fang from the reptile's jaw.

There are four or five species of Puff-Adders in Africa, and all are dangerous. Chapman, the traveller, records that one of his dogs seized a large puff-adder by the tail, and shook it. No sooner was the snake released, than it darted at the dog's face, and having fixed its fangs in his cheek, fastened there like a bull-dog, until it was killed. The dog survived only ten minutes.

Burchell, the South African traveller, states that, "unlike the generality of snakes, which make a spring or dart forwards when irritated, the puff-adder, it is said, throws itself backwards; so that those who should be ignorant of this fact would place themselves in the very direction of death, while imagining that by so doing they were escaping the danger."

The Rock Snakes are also natives of Africa. The Natal Rock Snake is of gigantic size, measuring from twenty-five to thirty feet in length. It feeds upon small quadrupeds; and for some days after regaling itself, lies in a state of

complete torpidity, and may easily be destroyed. The natives, however, do not profit by the opportunity; for while dreading, they also venerate the reptile, believing it can influence their destinies, and that no person ever prospers after killing one.

The rock snakes belong to the Python family; all the members of which attain to an immense size, are without exception non-venomous, of great muscular strength, and have the habit of suspending themselves to the branches of trees by the tail, and thence dart upon their prey, coiling their body around it, and crushing it to death in its powerful folds. The largest of the pythons, however, does not exceed thirty feet in length.

CHAPTER VI.

IN THE WEST INDIES.

IT was no small boon which Columbus bestowed on Europe, when his sagacity and heroic courage revealed to its inhabitants the West Indian Archipelago. From the rich and beautiful islands composing it come some of the most precious of natural products; and they have opened up to civilized man several important sources of comfort and even luxury of which he was previously ignorant. Like the islands of Polynesia, they are favoured by their climatic conditions; but their temperature is much higher, just as their soil is much richer, because they are included within the boundaries of the volcanic region of Central America. The heat, however, is somewhat tempered by the ocean-breezes which visit them night and morning; and in their more elevated portions the European settler is able to live without danger. The lowlands, it is true, are often scourged with malaria, and in some parts that terrible disease, the yellow fever, claims its hecatomb of victims annually; yet, when we remember the glorious scenery which almost every island presents—the genial air, the cloudless skies, the trans-

parent ocean, the plenitude of animal life, the gorgeous luxuriance of a varied vegetation—we feel that it is no hyperbole to speak of the West Indies as the "Earthly Paradise."

ASPECTS OF VEGETABLE LIFE.

Conspicuous among the wonders and beauties of West Indian vegetation stand the glorious palms, some of which attain a height of one hundred and fifty feet. For upwards of a hundred feet the stem will rise as straight and smooth and gray as a polished column of granite; then three or four spathes of flowers, each about five feet long, jut outward and upward; above these, the green stem of the tree for some thirty feet; and then the flat crown of plumes, darkly outlined against the sky, and looking, at such a height, like a diadem of tiny feathers.

Passing onwards, we come to a clump of gigantic ceibas, or silk-cotton trees, which the negroes regard with superstitious reverence, as haunted by evil spirits; therefore they are never felled, but left to grow old and decay, with their prickly spurs about them, and their roots rising high out of the ground, and, at a height of seventy or eighty feet, their level canopy or roof of boughs—from which hang suspended innumerable lianas and orchids, and wild pines with long wavy air-roots, and parasites of every form and colour.

Now we enter a cacao plantation, which has been aptly compared to an orchard of nut-trees, with very large, long leaves. Each tree is trained to a single stem; and among them—planted as landmarks, to prevent the young cacao-trees from being destroyed when the weeds are cleared—

grow the common hot-house daturas, their long white flowers loading the air with perfume. A few paces further, and we plunge into the high woods, or virgin forest.

ANIMAL LIFE IN THE WEST INDIES.

Landing on the shore of some of the islands, where the mangroves push their tangle of roots down to the very waves, we are at once introduced to a West Indian crustacean, and to one of Nature's most humorous oddities.

The first time one sees a party of "calling crabs," one is unable to check one's laughter. It is impossible to describe the grotesque appearance they present, with their couples of long stalked eyes, standing upright like "a pair of opera-glasses," and the long single arms which each brandishes violently, as if daring some imaginary foe to the encounter.

The "calling crab" is of a moderate size, with a carapace very broad in front, and almost straight. Along it runs a groove or channel, in which lie, right and left, the two eyes, each on a foot-stalk half as long as the breadth of the body; so that, when at rest, he carries his eyes just as if they were a pair of epaulets, and peeps out at the joint of each shoulder. When in quest of food, however, the animal brings the telescopes right in front, and surveys the scene before him with a remarkable *wide-awakeness*. Still further to add to his ludicrous appearance, he is like a small man gifted with one arm of Hercules and another of Tom Thumb. The comparison, by the way, is Mr. Wood's, and it is a very good one. One of the claw-arms—generally the left—is merely rudimentary, and, in fact, is not

seen; the other lies folded along the whole front of the shell,—and when danger threatens, it is with this strong right arm, this formidable weapon, he invites his opponent to come to blows.

He is a resolute old soldier, and in the fray carries himself gallantly, keeping his long arm across his body, and fencing and biting with it both sharply and swiftly. "Moreover, he is a respectable animal, and has a wife, and takes care of her; and to see him in his glory (they say), you should see him sitting in the mouth of his burrow, his spouse packed safe behind him inside, while he beckons and brandishes, proclaiming to all passers-by the treasure which he protects, while he defies them to touch her."

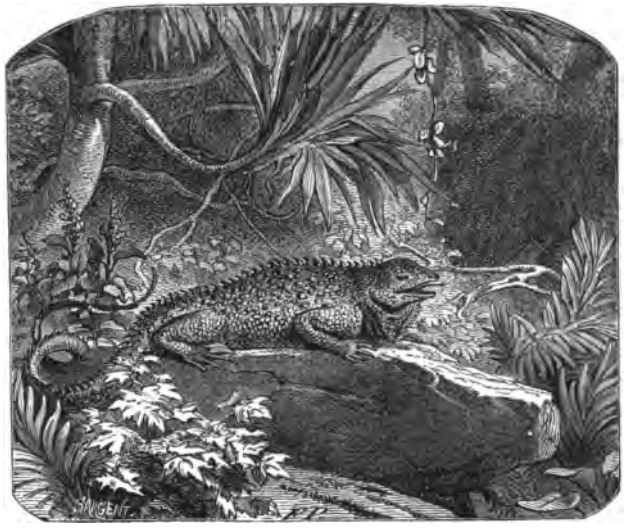
In among the mangroves and low Tropical bush lies a still lagoon; and this lagoon is the haunt of the Boa-constrictors,—not only of the true boa, which is both striped and spotted, but of the great anaconda, or water-boa, whose skin is marked only by a few large round spots. Both species are fond of the water, the anaconda (or huillia) living almost entirely in it; both grow to a very large size, and are dangerous, at least to children and small animals. The memory is preserved of an incident which might easily have been a painful tragedy. Four young ladies, instead of going to bathe in the surf outside, preferred "a dip" in the calmer lagoon. As they were disporting themselves, one of them felt herself seized from behind. Supposing it was a joke of one of her sisters, she called out to her to let her alone; and looking up, saw to her astonishment that her three sisters had regained the bank. She looked

behind, and shrieked for help; not too soon, for an anaconda had seized her. The other three girls bravely dashed in to her assistance. The creature fortunately had got hold, not of her poor little body, but of her bathing-dress, to which it continued to cling obstinately. The girls pulled; the bathing-dress, luckily of thin cotton, was torn off; the anaconda glided back again with it in its mouth into the dark, dense tangle of the mangrove roots, and the girl was saved. Two minutes' delay, and its coils would have been around her, and she must have perished.

The habits of the boa-constrictor resemble those of the anaconda. It lurks in the jungle by the side of rivers and lakes, waiting for its prey; or attaches its tail to the branch of some overhanging tree, and thus suspended, allows its head and body to float listlessly on the surface of the stream. It frequently attains the length of twenty-five to thirty feet.

The Saurian, or Lizard family, is largely represented in the West Indies.

As, for instance, the Iguana, the flesh of which is esteemed capital eating, and is cooked in a variety of ways; sometimes as a roast, sometimes as a stew, and sometimes in a fricassee, with the eggs whole. This reptile attains the respectable length of five and even six feet, the tail being nearly three times the length of the body. When the sun shines, and when the water is not too cold, it indulges in a swim; but its swimming is not performed after the fashion of other lizards, inasmuch as it makes no use of its legs, but trusts entirely to its tail. It dives



IGUANA.

with much ease, and sometimes remains for a considerable time beneath the surface. Its tail is all-important to it; not only as a locomotive agent both in swimming and in climbing trees, but as a weapon of defence. A blow from it is sufficient to inflict a severe wound: hence as an opponent it is not to be despised. The natives hunt it with dogs trained for the purpose. Immediately on scenting it, the dog gives tongue, and if the reptile should be on the ground, seizes it by the back, and either kills it, or so maims it as to make its capture easy. If in a tree, the iguana is shaken down,—which cannot be effected without much labour,—or the branch is cut off. The resemblance in colour between these creatures and the moss-tinted,

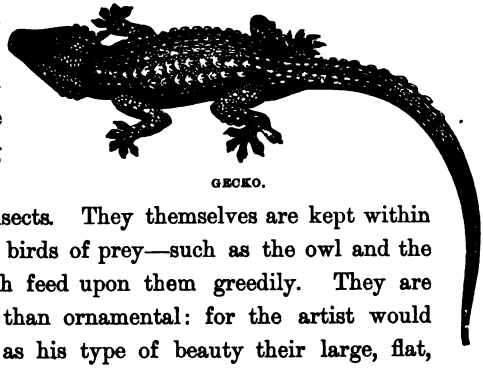
lichen-coloured trees is so close that they cannot be tracked without dogs. Yet few dogs, unless expressly trained, will touch them; for not only do they ply their tails vigorously, but they scratch and bite like wild cats; and when once they have fastened their teeth upon an object, it is not easy to loosen their hold.

The Anoles are akin to, but much smaller than, the iguanas. They abound in Jamaica, and other islands of the archipelago, and appear to have no fear of man. In the dwelling-houses of rich and poor they make themselves at home. You may see them chasing each other in and out between the jalousies: now stopping to protrude from the throat a broad crimson or orange disk, like the petal of a flower; then withdrawing it, and again extending it in lively frolic. Now one leaps a yard or two through the air, and alights on the back of a playfellow; whereupon both engage in a series of the most amusing contortions. Another runs up and down the plastered wall, catching the ants as they roam in black lines over its whitened surface; and another springs from the top of some piece of furniture upon the back of the visitor's chair, and scampers nimbly along the collar of his coat,—thence it jumps upon

ANOLE.

the table. But stay: can it be the same? If so, what wondrous transformation has it undergone? A moment ago it was of the most beautiful golden green all over, except the base of the tail, which gleamed a soft light purple; now, as if changed by an enchanter's wand, its livery is a dull sooty brown, which becomes momentarily darker and darker, or mottled with dark and pale patches of a most unpleasing aspect. Presently, however, the mental emotion, whatever it was—fear, anger, or dislike—has passed away, and the lovely emerald hue sparkles in the sunshine as before.

Another family of lizards—the Geckoes—are almost ubiquitous; and such is their familiarity with man that they do not hesitate to introduce themselves into his habitations, where they render an all-important service by devouring flies, spiders, and other insects. They themselves are kept within limits by the birds of prey—such as the owl and the hawk—which feed upon them greedily. They are more useful than ornamental: for the artist would hardly take as his type of beauty their large, flat, toad-like head; their body, thick, short, almost "squat," low on the legs, with a belly trailing on the ground, and covered with a warty and scaly skin of sombre colour. During the day the geckoes generally lurk in some dark



GECKO.

corner or crevice; but at dusk they sally forth in search of prey, running along the steepest walls with wonderful swiftness, and venting a shrill, quick noise by smacking their tongue against the palate.

These lizards are enabled to glide along ceilings or steep walls, owing to the construction of the soles of their broad feet. All the toes are considerably broadened at the edges; and their under surface is divided into a number of transverse laminæ, from which exudes an adhesive fluid. They are also provided with sharp, crooked, retractile claws, like those of a cat, which assist them greatly in climbing trees.

CHAPTER VII.

THE EASTERN ARCHIPELAGO.

BETWEEN Asia and Australia, as a glance at the map will show us, lie a considerable number of islands, large and small, which form a distinct group, or cluster of groups, all more or less connected with each other, and apparently independent of both continents. Situated within the bounds of the Torrid Zone, washed by the warm waters of the vast Tropical Ocean, these favoured islands enjoy a climate more uniformly hot and moist than almost any other region of the globe, the West Indies excepted, and are rich in forms of animal and vegetable life which are elsewhere unknown. The most delicious of fruits and the most precious of spices here grow spontaneously. It produces the colossal flowers of the rafflesia; the great emerald-winged butterflies, the shining birds of paradise, the flying lemurs, the mound-building megapodidæ, and the man-like orang-outang. And further, it is inhabited by a peculiar and remarkable race of mankind, the Malay, found nowhere beyond this Archipelago and the Malay Peninsula, whence it is sometimes called the Malay Archipelago.

In length it extends from east to west about 4000 miles, and in breadth from north to south about 1300 miles. It includes the Malay Peninsula on the east, and the Solomon Islands on the west; the Philippines on the north, and Chandana on the south. Some of its principal islands lie in almost a straight line, from the Malay Peninsula to the north-western coast of Australia—namely, Sumatra, Java, Bali, Lombok, Sumbawa, Floris, and Timor. To the north lies another, but less regular series: Borneo, Celebes, the Moluccas, and New Guinea; and still farther to the north is situated the outlying group of the Philippines.

Recent investigations into the flora and fauna of these islands, as well as into the depth of the sea separating the islands from each other, and from the mainland of Asia and Australia, have proved beyond doubt that the Malay Islands may be divided, by a line passing between Bali and Lombok, into a western group, which formerly had a land connection with Asia, and an eastern group, whose plants and animals point as clearly to a former connection with the island-continent of Australia.

Of the Asiatic group of Malayan Islands the most noteworthy is Java, of which it has been truly said that no spot of the same size on the face of the earth contains so many volcanoes. Volcanic islands, however, are usually endowed with a profuse and splendid vegetation,—and this is eminently true of Java. Though but one-sixth of the area of Borneo, and one-third of that of Sumatra, it is the most important island in the Archipelago, and occupies to the East Indies the same relation that Cuba holds to the West Indies. It abounds in forests, and in forests which yield

large quantities of valuable timber. The tall and graceful cocoa-nut palm, the screw-pine, the banana, the papaw, the lofty fig, the liquid-amber, the beautiful cotton-wood tree, the mango, the mangosteen, the durian, and the bread-fruit; these are among the treasures of opulent Java. Its fauna is not less prolific; its jungles being the haunts of wild oxen, tigers, leopards, the rhinoceros, wild hogs, and deer. There, the bird world is represented by peacocks and sparrows, pigeons, rice-eaters, eagles, falcons, owls, and numerous smaller species.

Separated by narrow arms of the sea, Bali, Lombok, and Sumbawa are but a continuation of Java, so far as the volcanic chain is concerned, though on a somewhat smaller scale, their mountains being little more than 8000 feet in height.

In their fauna and flora, however, Bali and Lombok differ widely. The former terminates the Asiatic division of the Archipelago; the latter is the advanced post of the Australian division. The two islands are divided only by a narrow channel, a few miles across, and yet on passing from the one to the other the traveller feels that he has entered a new geographical region. "In Bali we have barbets, fruit-thrushes, and woodpeckers; on passing over to Lombok these are seen no more, but we have abundance of cockatoos, honeysuckers, and brush-turkeys, which are equally unknown in Bali, or any island farther west. The strait is here fifteen miles wide; so that we may pass in two hours from one great division of the earth to another, differing as essentially in their animal life as Europe does from America.

"If we travel," continues our authority, "from Java or Borneo to Celebes or the Moluccas, the difference is still more striking. In the first, the forests abound in monkeys of many kinds, wild cats, deer, civets, and others, and numerous varieties of squirrels are constantly met with. In the latter none of these occur; but the prehensile-tailed cuscus is the only terrestrial mammal seen, except wild pigs, which are found in all the islands, and deer (which have probably been recently introduced) in Celebes and the Moluccas. The birds which are most abundant in the Western Islands are woodpeckers, barbets, trogons, fruit-thrushes, and leaf-thrushes. In the Eastern Islands these are absolutely unknown, honeysuckers and small lories being the most common birds; so that the naturalist feels himself in a new world, and can hardly realize that he has passed from the one region to the other in a few days, without ever being out of sight of land."

We now proceed to the northern chain of islands, beginning with Borneo, which in the Indo-Malay division of the Archipelago occupies the first place, and is still, in spite of the labours of Wallace, Spencer St. John, and Madame Ida Pfeiffer, comparatively virgin ground. Into the solemn silence of its mighty forests few Europeans have ever penetrated; and the summits of its wooded mountains remain untrodden by the foot of man. Among the dense tangle of its remote wildernesses bloom plants for which the botanist as yet has found no name; and forms of animal life roam to and fro which no naturalist has yet described. The explorer need not be afraid of trespassing

on the domain of his predecessors: the great island lies all before him where to choose, except the belt of land along its coast, and the course of some of its noble rivers; and like that fairy isle which rejoiced in the presence of the exquisite Ariel, it is of "subtle, tender, and delicate temperance," for Nature has endowed it with many and splendid gifts. Like Ariel's island, too, it has its "strange noises;" for the wail of the orang-outang resounds at night through its far-spreading woods, and its echoes repeat the cry of the helmeted hornbill.

Borneo may be said almost to teem with animal life. Among the forest-boughs lives the orang-outang, seldom venturing to the ground. The fig-tree thickets which cover the mountain-slopes are haunted by the gibbon. The principal beast of prey is the striped tiger, which, however, is not so fierce as its Indian congener. The bear is also a mild-mannered animal, living on cocoa-nuts, and honey purloined from the nests of the wild bees. The mountain districts are frequented by the buffalo and by the nuper, a species of musk-ox. Deer are numerous in the woods; and the natives affirm that whoever eats of the flesh of one species, the munshur, will perish miserably from cutaneous disease. A wild hog, of savage aspect, and with enormous whiskers, inhabits the woods; where also the porcupine feeds without injury on the fruit of the poisonous upas tree. The rivers of Borneo are the resort of three species of crocodiles, and a curious creature, something between the otter and the ornithorhynchus, called the potamophilus.

We pass on to Celebes, which, from its singularity of

SCENE IN CELEBES.

shape, has been compared to a tarantula, and consists, in the main, of four large peninsulas, extending eastward and

southward, and separated by three deep gulfs. All three are formed by chains of mountains, which originate in a common central mass. At their feet spread immense grassy and fertile plains, intersected by breadths of forest which exhibit the characteristic opulence of Tropical vegetation. Woods of oak, and teak, and cedar, and upas clothe the mountain-sides; while the valleys and plains bloom with the clove and nutmeg trees, the sago and other palms, the pepper-vine, the odorous sandal-wood, the mango, the banana, and the silk-cotton tree. The cultivator directs his attention to the ginger-plant, the coffee-tree, the sugar-cane, indigo, the cacao, the manioc-root, and tobacco; all of which repay his labour with abundant crops.

It is noticeable in Celebes—and it affords a proof of the soundness of the hypothesis that recognizes it as formerly a part of an Australian continent—that its forests, vast and tenebrous as they are, contain none of the larger carnivorous animals or pachyderms,—neither elephant, rhinoceros, tiger, nor panther. On the other hand, we meet here with some of the pouched animals, or marsupials, which find ample supplies of food in the wooded glades. A deer known as the *anooang** inhabits the pastures, where also antelopes and the babyroussa pig abound. There are numerous species of monkeys. The tarsius spectrum leaps from bush to bush in the low grounds; the cameleon pursues its continuous quest of insects; and, aided by its membranous wings, the flying dragon takes headlong leaps through the labyrinth of green boughs. The smaller quad-

* *Cervus depressicornis.*

rupeds, such as moles, rats, and field-mice, are prevented from too rapid an increase by the numerous snakes of the island, which include the formidable python, that crushes with its coils, and the deadly cobra, that kills with its sting.

Pleasant in the woods is the gleam of the emerald plumage of the parrots, and the various hues of the bright fruit-pigeons, and of other species of the feathered tribes which belong wholly to this interesting island. Here, too, are found the maleo, and the mound-building brush-turkey, of both of which it may be convenient to say here a few descriptive words, before we continue our survey of the Australian islands of the Archipelago.

The Maleo is a very handsome bird, with a glossy black and rosy white plumage, a helmeted head and elevated tail. It walks with much stateliness of mien, and its general air of sedateness is really impressive. It runs quickly, but if alarmed takes wing with a loud laborious flight to some neighbouring tree, where it settles, and probably roosts, on a low branch.

In the months of August and September, when rain is sparse, these birds make their way to the sea-shore, and in the loose hot sand scratch holes three or four feet deep, just above high-water mark. Here the female deposits one large egg, which she covers over with about a foot of sand, and then returns to the forest. At the end of ten or twelve days she reappears, and in the same hole lays another egg; repeating the process six or eight times during the season. The male assists the female in making the hole, and regularly escorts her to and from the forest.

Every year the natives come from fifty miles around to obtain these eggs, which, when fresh, are capital eating. They are richer and of a finer flavour than our hens' eggs; while a single egg will completely fill an ordinary tea-cup, and, with a little rice or bread, forms a sufficient meal. The colour of the shell is sometimes a creamy white, but more often a pale brick red. In shape it is elongate, and slightly smaller at one end; measuring from four to four and a half inches in length, by two and a quarter or two and a half inches in width.

The nearest allies of these birds are the Megapodii, or Mound-makers. The latter are abundant in all the islands of the Molucca group. They are gallinaceous birds, about the size of a small fowl; and, as their scientific name implies, they have large strong feet, with which, in the scrubby jungles of the sea-shore, they scrape together immense heaps of sand, sticks, shells, stones, sea-weed, leaves, and mould,—anything and everything,—until they are often seven or eight feet high, and twenty to thirty feet in diameter.

In the centre of the mound thus curiously constructed, and at a depth of two or three feet, the female deposits her eggs, which she leaves to be hatched by the gentle heat thrown out from the fermenting vegetable refuse. The young bird, on breaking its shell, appears without tail, but with fully developed wings, and covered with thick downy feathers. It works its way up through the rubbish loosely piled over its head, and immediately betakes itself to the forest.

Mr. Wallace describes a species of these strange birds,

which, instead of building a mound, excavates a burrow. The Megapodius Wallacei, as it has been christened, inhabits the islands of Gilolo, Ternate, and Ceram. It excavates in the sand an oblique tunnel about three feet deep, and at the bottom lays its precious treasure. This it does at night; then filling up the burrow, it returns in the morning to its forest-home—taking care, by dexterous zigzag movements, so to cross and obliterate its footprints, as to render the discovery of its track a work of difficulty. The eggs are of a rusty-red colour, and about three inches and a quarter in length. They are much esteemed by the natives.

To the south of Celebes lies the island of Bouru, where a belt of fertile lowlands surrounds a central hilly mass. The dark woods bloom with a rich vegetation, and are frequented by numbers of beautiful birds, lories and other parrakeets, with bright azure-tinted heads, red and green breasts, and the under surface of their wings shining with brilliant yellow and vermilion :—

> "Gay, sparkling lories, such as gleam between
> The crimson flowers of the coral-tree
> In the warm isles of India's sunny sea."

They feed upon insects and the honeyed sweets of the flowers. Bats also are very plentiful, sallying forth in pairs at dusk, and beating about the fruit-trees with their leathery wings. Some of these "flying foxes," as the Dutch call them, are of great size, their wings measuring nearly five feet across. During the day they seek the concealment of the rich foliage, and hang, head downwards, from the green branches.

Insects are a scourge in Bouru, as in other Tropical islands. This is more particularly true of the ants, of which Mr. Bickmore says, that no one who has not lived in the Tropics can have any idea what a source of vexation they are. "Bread, sugar, and everything eatable," he says, "they are sure to devour, unless it is kept in glass-stoppered bottles; and this is the greater annoyance, because, when a quantity of provisions is lost, as is constantly happening, it is so difficult to procure another supply, in every part of the Archipelago except in the immediate vicinity of the few chief cities. They are sure, in some way or other, to find their way into every little nook or corner; and though a table be set with the greatest care, in nine cases out of ten some will be seen running on the white cloth before dinner is over. The floors of the houses occupied by Europeans are usually made of large square pieces of earthenware, and through the cracks that chance to occur in the cement between them, ants are sure to appear. It is this, probably, that has given rise to the saying, that 'the ants will eat through a brick in a single night.' In all parts of the Archipelago it is an established custom either to whitewash the walls inside and outside, or else paint them white, except a narrow strip along the floor, which is covered with a black paint chiefly composed of tar, the only common substance to which these ants show any aversion. All these troubles are caused by the 'black ants;' but their ravages do not compare with those caused by the 'white ants,' which actually eat up solid wood. The frames of many of the smaller buildings and out-houses in the East are not mortised, but are fastened

together with pieces of coir rope; and, of course, when they are eaten off, the whole structure comes to the ground."

Amboina is divided by a deep bay nearly into two unequal parts, both of which are composed of high hills rising as abruptly from the sea as the mountainous cliffs of the Norwegian fiords. Its shores are frequented by the Robber Hermit Crab, whose habits may justly be described as most remarkable. It feeds upon the cocoa-nut, and, as the ripe fruit falls from the tree, tears off the dry husk with its powerful claws until it lays bare the end of the shell where the three black scars are found. Then it breaks the shell by hammering on it with one of its heavy claws, and the oily, fattening food within is obtained by means of one of the pincer-like claws attached to its hinder joints. It is esteemed a delicacy by the natives, and its food would certainly seem likely to improve the flavour of its flesh.

Passing the volcanic group of Banda, which presents little that is interesting in the shape of animal life, we may take a rapid glance at Gilolo, the largest of the Moluccas. Its outline is very curious, resembling that of Celebes; the result, as in that island, of volcanic action. Its four peninsulas radiate from a common centre, and are all mountainous, the acclivities rising abruptly from an unfathomable sea. The principal productions of the island are fruits, spices, sago, cocoa-nut, and edible birds'-nests; besides pearls and gold dust. Deer and wild

boars are numerous, but the animals exhibit no remarkable characteristics.

The edible birds'-nests are the work of a species of swallow—the Collocalia esculenta—which inhabits the caverns

EDIBLE NESTS.

and grottoes of the sea-coast, and exclusively seeks its food in the ocean-waters.

Where the rolling waters have worn deep caves into the precipitous cliffs, there the swallow builds her nest. When

the sea is tossed by the winds, whole swarms may be seen borne aloft on robust wing, or riding on the foamy crests of the billows. "Who," says an eloquent writer—"who can explain the instinct which prompts these birds to glue their nests to the high dark vaults of these apparently inaccessible caverns? Did they expect to find them a safe retreat from the persecutions of man? Then surely their hopes were vain; for where is the refuge to which his greediness cannot find the way? The boldest and strongest of the nest-gatherers wedges himself firmly in the hollows, or clings to the projecting stones, while he fastens rattan ropes to them, which then hang four or five feet from the roof. To the lower end of these ropes long rattan cables are attached, so that the whole forms a kind of suspension bridge, throughout the entire length of the cavern, alternately rising and falling with its inequalities." These nests are exported to China, where they form the principal ingredient in a much-esteemed soup.

Batchian, small as it is, is, in several respects, a remarkable island. It is here the traveller from the West first meets with the beautiful bird of paradise; and it is here he takes leave of the Quadrumana.

Though a bird of paradise inhabits Batchian, the true home of its superb and interesting family would appear to be the Aru Islands. In this small and comparatively unknown group lives the beautiful King Bird. It is scarcely so large as a thrush, and yet it is a marvel of beauty! Most of its plumage is of a vivid cinnabar red, with a gloss as of

spun glass upon it. The head-feathers are short and velvety, and shade into an indescribably rich orange. Beneath, from the breast downwards, the plumage is of snowy white, with the softness and sheen of silk, while a band of deep metallic green across the breast separates the white purity from the glow of the throat. Above each eye shines a circular patch of the metallic green; the bill is yellow; while, as a rich contrast to the rest of the body, the feet and legs are of a fine cobalt blue.

Springing from each side of the breast, but generally lying concealed under the wings, are little tufts of grayish feathers about two inches in length, and terminated by a broad band of intense emerald green. These plumes the bird can elevate at will, and expand, when the shining wings are raised, into a pair of elegant fans.

Then, again, the two middle feathers of the tail assume the form of slender wires above five inches in length, diverging in a beautiful double curve. About half an inch of the end of this wire is webbed on the outer side only, and is tinted a deep metallic green, and being curled spirally inwards form a pair of "elegant glittering buttons," hanging five inches below the body, and the same distance apart. These two ornaments, the breast fans and the spiral tipped tail-wires, are wholly unique, "not occurring on any other species of the eight thousand different birds that are known to exist upon the earth;" and, combined with the most delightful and fantastic colouring and softness of plumage, render this bird "one of the most perfectly lovely of the many lovely productions of Nature.

It is a suggestive fact that a bird of such exquisite

beauty should be confined to the forest-shades of a remote island, in a sea seldom visited by merchant fleets and navies. Year after year, successive generations of this little creature have run their course; living and dying among the wooded solitudes, with no intelligent eye to gaze upon and appreciate their delicate loveliness. The reflection has been taken up by Mr. Wallace, and his observations seem to us both accurate and judicious. "It is sad," he remarks, "that on the one hand such fairy creatures should live out their lives and exhibit their charms only in these wild, inhospitable regions, doomed for ages yet to come to hopeless barbarism; while, on the other hand, should civilized man ever reach these distant lands, and bring moral, intellectual, and physical light into the recesses of these virgin forests, we may be sure that he will so disturb the nicely-balanced relations of organic and inorganic nature as to cause the disappearance, and finally the extinction, of these very beings whose wonderful structure and beauty he alone is fitted to appreciate and enjoy. This consideration must surely tell us that all living things were *not* made for man." The problem of their existence, however, it is difficult, if not impossible, to solve; and we must be content to accept the economy of Nature as it is made manifest to us.

It is reasonable to suppose that the skins of birds of paradise were exported to Banda, and sold to the Chinese traders, long before the ships of Magellan navigated the Eastern Seas. The first European who has put on record any account of them is Pigafetta, the historian of Magellan's expedition. He relates that the king of Batchian

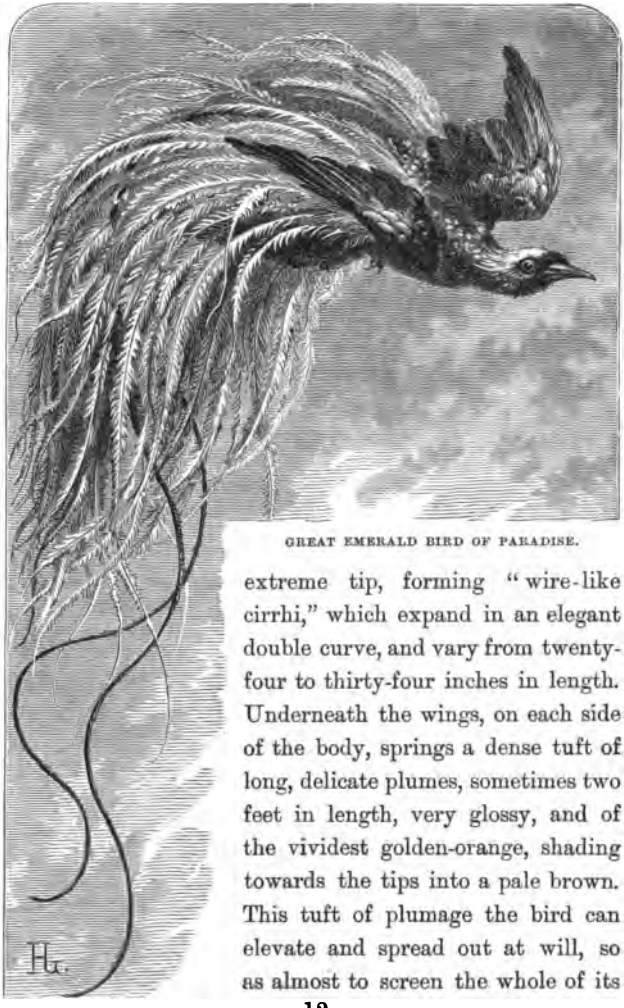
gave his companions a slave and nearly two hundred pounds of cloves as a present for their emperor, Charles V., and also "two most beautiful dead birds...We were informed," adds Pigafetta, "that these birds came from the Earthly Paradise, and the natives called them *Colondinata*, —that is, 'birds of God.'" This word the Portuguese translated into their own language as "ave de paraiso," and hence our English term, "birds of paradise,"—a term scarcely too extravagant, when we consider the brilliant colouring of their jewelled plumage.

The vulgar errors which once prevailed respecting them illustrate, in a remarkable manner, the credulous character of the Middle Ages. It was asserted that these birds passed their whole life sailing in the air, and that they fed wholly upon dew; that they never rested, except by suspending themselves from the branches of the tallest trees by the shafts of their two elongated tail-feathers; and that they never touched the earth until the moment of death. These curious fancies originated probably in the circumstance that the Papuans tore off the legs of the birds when preparing them for market; and as they reached Europe in a legless condition, it was quietly assumed that the deficiency was natural!

Birds of paradise are confined to New Guinea and the adjacent islands, where they live in large troops in the immense forests, flashing through the leafy glades with the sheen of gems. They live principally upon fruits. In their motions they are light, active, and graceful; and they seem to prefer the lofty trees, though in the morning and

at noon they seek the lower branches, to search for food, and to shelter themselves among the embowering foliage from the heat of the sun. They sometimes regale themselves on the soft bodies of insects, but their chief partiality is for the fruit of the teak and the fig trees. Their cry is loud, sonorous, and characterized by a rapid succession of notes. The first four are very long, exactly intonated, and of great clearness and sweetness; the last three are repeated in a kind of caw, which has been described as a "very high refinement of the voice of a daw or a crow." As to fly with the wind would ruin their loose soft plumage, the paradise birds invariably fly *against* it, and venture forth only when the weather is fair and genial.

We cannot attempt to describe the numerous species of the "Paradiseidæ." At two or three of the more beautiful we may briefly glance. Take, for instance, the Great Emerald Bird, which is the largest species known, measuring seventeen or eighteen inches from the beak to the tip of the tail. The body, wings, and tail are of a rich vermilion-brown, deepening on the breast to a blackish violet or purple-brown. The whole top of the head and neck is of an exceedingly delicate straw-yellow, the feathers being short and close set, so as to resemble velvet; the lower part of the throat up to the eye is clothed with scaly feathers of an emerald green colour, and with a rich metallic gloss, and velvety plumes of a still deeper green stretch in a band across the forehead and chin, as far as the eye, which is of a bright yellow. There are no webs to the two middle tail-feathers, except a very small one at the base and the



GREAT EMERALD BIRD OF PARADISE.

extreme tip, forming "wire-like cirrhi," which expand in an elegant double curve, and vary from twenty-four to thirty-four inches in length. Underneath the wings, on each side of the body, springs a dense tuft of long, delicate plumes, sometimes two feet in length, very glossy, and of the vividest golden-orange, shading towards the tips into a pale brown. This tuft of plumage the bird can elevate and spread out at will, so as almost to screen the whole of its

body. It is confined entirely to the male sex, and the female is a dull-looking bird in a garb of nearly uniform coffee-brown colour.

The Lesser Emerald Bird is slightly smaller than that just described, but in other respects is scarcely distinguishable. It is the most common species, and its plumes are those usually brought to this country for commercial purposes.

Another brilliant species is the Red Bird of Paradise, which is found nowhere but in the small island of Waigiou, off the north-west coast of New Guinea.

Its side plumes are of rich crimson, somewhat rigid, tipped with white, and curving both downwards and inwards at the ends. The two tail-feathers may be likened to a couple of stiff black ribbons, about a quarter of an inch wide, but curved like a split quill, and resembling "thin half cylinders of horn or whalebone," which, during life, hang downwards with a spiral twist, forming an exceedingly graceful double curve.

Rarest and most brilliant of the Lophorine birds of paradise is the Superb, known to Europeans until recently only from mutilated native skins. The ground-colour of its plumage is a deep black, but with beautiful bronze reflections on the neck, and brilliant metallic green and red over the whole head. Its breast is adorned with a long narrow escutcheon of bluish green feathers, shining all over with a peculiar satiny gloss. On the back of the

SUPERB BIRD OF PARADISE.

neck rises a larger but similar shield, of a velvety-black colour, glossed with bronze and purple.

It is impossible to convey by words any adequate idea of the beautiful play of colour in the plumage of the Golden or Six-shafted Bird of Paradise, which owes its name to the six truly wonderful feathers which spring from the sides of its head. These shafts are slender wires, six inches long, with a small oval web at the extremity.

GOLDEN BIRD OF PARADISE.

We might speak of the Magnificent, and the Twelve-wired Bird, the Standard Wing, the Long-tailed, the Scale-breasted, and several other species; but with no other result than to perplex the reader by a rapid enumeration of glowing hues and fanciful embellishments.

Less is known than could be wished of the habits of these splendid birds, but Mr. Wallace has added some interesting details to our previous scanty stock of information.

He was told by the natives that certain of these make their nests of leaves placed on an ant-hill, or on some projecting limb of a very lofty tree; and that the mother lays,

it is thought, but one egg. They moult about January or February; and in May, when they are in full plumage, the males assemble together in the early morning for the purpose of displaying their several attractions. These displays the natives call their "sácaleli," or dancing-parties; they invariably take place in large trees, with immense canopies of spreading branches, and large but scattered leaves, which afford space for the birds to move about and flash upon one another the full magnificence of their plumes.

On these occasions a dozen or twenty full-plumaged male birds may be seen collected on a single tree, now raising up their wings, now extending their necks, and now elevating their airy, fairy tufts and shafts, which they vibrate incessantly. Ever and anon they fly across from branch to branch in great excitement, until the whole tree seems alive with wavering, glancing, gleaming plumes, in every variety of attitude and movement.

The natives take advantage of these "sácaleli" to obtain specimens of the birds.

When they discover that the birds have fixed on a tree as the scene of their display, they build a little arbour of palm leaves in a convenient place among the embowering foliage, and the hunter takes up his position in it before daylight, armed with his bow and a number of arrows terminating in a round knob. A boy waits at the foot of the tree; and when the birds make their appearance at sunrise, the hunter discharges a blunted shaft with so much violence as to stun his victim, which drops down, and is secured and killed by the boy, its plumage unstained

SHOOTING BIRDS OF PARADISE.

by even a drop of blood. As the others take no notice of the fall of their comrade, they perish one after another, until at last the alarm is given.

The natives of Waigiou capture the red bird of paradise by a very ingenious stratagem. A large climbing arum bears a red reticulated fruit to which the red birds are exceedingly partial. The hunters attach this fruit to a stout forked stick, and provide themselves with a supply of fine but strong cord. Then they seek out some tree in the forest which the birds are wont to frequent, and climbing up it fasten the stick to a branch, and arrange the cord in so ingenious a noose that when the bird comes to devour

the bait its legs are caught, and by pulling the end of the cord, which hangs down to the ground, it pulls off the branch, and brings the victim with it. Sometimes, when food is abundant elsewhere, the hunter may sit all day under the tree, cord in hand, or it may be for two or even three days in succession, without getting "a bite;" on the other hand, he may be fortunate enough to secure two or three birds in a day.

But we must take leave of the Land of the Birds of Paradise, and complete our rapid survey of the physical aspect of the Archipelago by a glance at New Guinea, or Papua. The coast region, for the most part, is a vast marshy level, covered with thick forests, and intersected by innumerable creeks, inlets, and fresh-water channels. Immense mud-banks extend ten or twelve miles out to sea, and through these the great rivers pour their copious floods; or, in some cases, spread into several arms, and form a low alluvial delta. Inland, the land rises into ranges of hills; and these ascend in terraces to the mountain-heights, which attain a considerable elevation, and occasionally exhibit their summits crowned with perpetual snow.

Huge trees abound in the forests, where the vegetation is characterized by a rank luxuriance. The sago-palm is found on the banks of the rivers; the nutmeg-tree grows wild; and the natives cultivate rice, maize, yams, cocoa-nuts, sugar-cane, and bananas.

The mammals of Papua are apparently few in number, and these are principally marsupials, like those of Australia. The kangaroos, however, belong to entirely distinct species,

two of which are arboreal in their habits. Trepang (holothuria) and turtle abound on the coast; and fully one hundred and eight species of birds have been distinguished, including birds of paradise, lories and parrakeets, grackles, king-hunters, racquet-tailed king-fishers, and cockatoos.

ANIMAL LIFE IN THE ARCHIPELAGO.

In noticing the principal islands of the Archipelago, we have noticed also some of the more remarkable animals which inhabit them; but many, to which we could only allude in so rapid a survey, are of sufficient interest to justify a detailed description.

Foremost among them we must place the monkeys; and foremost among these, the Orang-outang, or "Mias," who shelters himself from the curiosity of man in the dense swampy forests of Sumatra and Borneo. This "wild man of the woods" recedes further from the human type than the chimpanzee; his hind legs are shorter, and his arms are so long that they reach to the ankles. He never stands erect, unless when supporting himself by the branches overhead, and he is rarely to be seen on the ground. His intelligence is considerable, though one would hardly think so from his physiognomy, to which the long chin, the prominent jaws, and the thick pouting lips give a peculiarly brutal expression.

"It is a singular and very interesting sight," says Mr. Wallace, "to watch a mias making his way leisurely through the forest. He walks deliberately along some of the larger branches, in the semi-erect attitude which the great length of his arms and the shortness of his legs cause

him naturally to assume; and the disproportion between these limbs is increased by his walking on his knuckles, not on the palm of the hand, as we should do. He seems always to choose those branches which intermingle with an adjoining tree; on ap-

ORANG-OUTANG.

proaching which he stretches out his long arms, and, seizing the opposing boughs, grasps them together with both hands, seems to try their strength, and then deliberately swings himself across to the next branch, on which he walks along as before. He never jumps or springs, or even appears to hurry himself, and yet manages to get along almost as quickly as a person can run through the forest beneath. The long and powerful arms are of the greatest use to the animal, enabling it to climb easily up the loftiest trees, to seize fruits and young leaves from

slender boughs which will not bear its weight, and to gather leaves and branches with which to form a nest.....This is placed low down on a small tree, not more than from twenty to fifty feet from the ground,—probably because it is warmer and less exposed to wind than higher up."

The "wild man of the woods" does not quit his rude couch of leaves until the sun has risen. All through the warm hours of the day he seeks the fruits on which he feeds, or the buds and young shoots of the growing trees. He seems to have a special fancy for unripe fruits, some of which are very sour, and intensely bitter. To the pulpy succulent durian, however, he is exceedingly partial, and wherever this fruit grows surrounded by forest he ravages it freely; but he will not cross the clearings or open glades to get at it. According to the Dyaks, he is never attacked by any of the forest animals except the crocodile and the python, and over these he is invariably victor. "He always kills the crocodile by main strength, standing upon it, pulling open its jaws, and ripping up its throat. If a python attacks a mias, he seizes it with his hands, and then bites it, and soon kills it. No animal in the jungle is so strong as he."

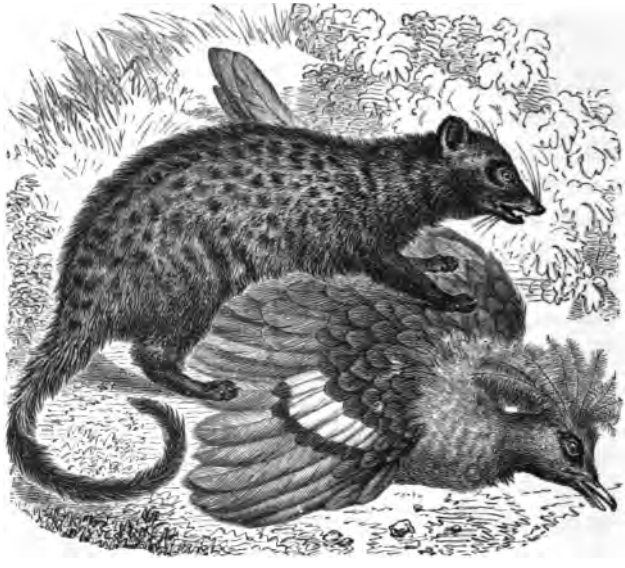
One of the most interesting of the smaller quadrupeds is the Javanese Ichneumon, which is about the size of a large water-rat.

This active little animal inhabits the teak forests in great numbers, where its mission is to keep down the increase of snakes, birds, and small quadrupeds. The story goes among the natives that when it attacks a snake

it brings cunning to the aid of courage. Puffing up its body like a bladder, it induces the snake to coil about the inflated object. Then it suddenly contracts itself, glides out of the reptile's grasp, and seizes it by the neck. Whether the story is true or not, we cannot decide; but it is at least certain that the animal *does* possess the faculty of expanding and contracting its body.

Very closely allied to the ichneumons are the Paradoxures, or Puzzle-tails. They have civet-like teeth, and cat-like claws, and a strange way of their own of twisting their tails into a tight coil.

One of these is the Musang of Java, which wages war against rats and mice, but has itself procured the sobriquet of the Coffee Rat, from the havoc it works among the coffee-plantations. It feeds upon the berries of the coffee-shrub; carefully selecting the very ripest fruit, which it dexterously strips of its membranous covering. "It is a remarkable fact," says Mr. Wood, "that the berries thus eaten appear to undergo no change by the process of digestion, so that the natives, who are free from over-scrupulous prejudices, collect the rejected berries, and are thus saved the trouble of picking and clearing them from the husk. However, the injury which this creature does to the coffee-berries is more than compensated by its very great usefulness as a coffee-planter. For, as these berries are uninjured in their passage through the body of the animal, and are in their ripest state, they take root where they lie, and in due course of time spring up and form new coffee-plantations, sometimes in localities where they are not



PARADOXURE KILLING A CRESTED GOURA.

expected. It may be that, although the coffee-seeds undergo no visible change in the interior of the musang, they imbibe the animal principle, and thus become more fitted for the soil than if they had been planted without the intermediate agency of the creature."

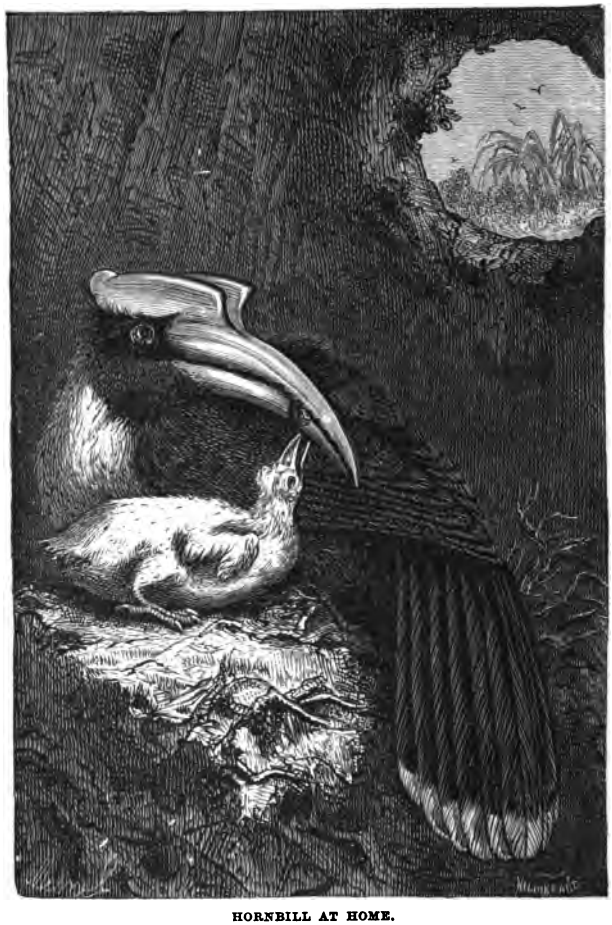
Among the animal curiosities of this region we beg leave to place the Flying Frog of Borneo, which is enabled to make flying leaps like the loris or flying lizard, by a somewhat similar natural provision. Its toes are very long, and being fully webbed to their extremity, offer, when expanded, a much larger surface than the body.

BIRD LIFE IN THE ARCHIPELAGO.

That bird life is abundantly represented in the Eastern Islands we have already shown; and reference has been made to the hornbill and its curious habits. Some additional information, however, seems necessary in relation to the birds of the Archipelago; and we may begin with a lively picture of the Hornbill at home, as sketched by Mr. Wallace.

While on a visit to Sumatra, he sojourned a while at a village near Palembang. He had sent out his hunters on a shooting expedition; and while he was at breakfast one morning they returned, bringing with them a fine large male hornbill, which they had shot while he was feeding his mate; the mate, said the hunters, being shut up in a hole in a tree. Wallace, having often read of this singular habit, gladly seized the opportunity of ascertaining for himself the truth of the statement, and immediately returned to the place, accompanied by several of the natives.

After crossing a stream and a bog—both of frequent occurrence in the forests—they found a large tree leaning over some water; and on its lower side, at a height of about twenty feet, appeared a small hole, and what seemed to be a large quantity of mud, which the hunters assured him had been used in stopping up the great hole. After a while they heard the harsh cry of a bird inside, and could see its white-tipped beak projecting. Wallace offered a rupee to any person who would climb and get out the bird, with the egg or young one; but all declared the task was too difficult, and were afraid to try. He therefore very



HORNBILL AT HOME.

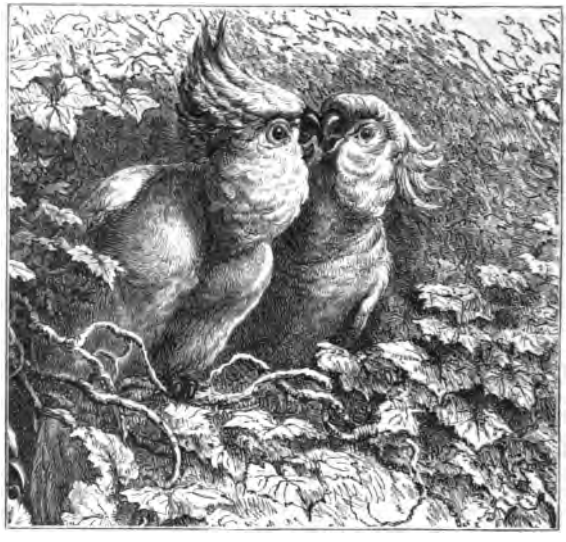
reluctantly quitted the spot. In an hour afterwards, much to his surprise, a tremendously loud and hoarse screaming

became audible, and the bird was brought to him, together with a young one which had been found in the hole. And a remarkable object the young one was; as large as a pigeon, but without a particle of plumage on any part of it. It was exceedingly plump and soft, with a semi-transparent skin; so that it looked more like a bag of jelly, with head and feet attached to it, than like a real bird.

The extraordinary habit of the male in plastering up the female with her egg, and feeding her during the whole time of incubation, and until the young bird is fledged, is common to several species of hornbills, and is one of those singular facts in natural history which are "stranger than fiction."

Our readers would be justified in censuring us if we omitted to notice the Great Black Cockatoo. It has a small and rather feeble body, long weak legs, but large wings, and an enormously developed head. This head, formidable in itself, and sufficiently conspicuous, is ornamented with a superb crest, and armed with a sharp-pointed, hooked bill of truly colossal magnitude. The plumage is entirely black, but, as is the case with all the cockatoos, covered with a kind of powdery secretion. Its cheeks are bare, and of a vivid red; so that the whole appearance of the bird is weird and fantastic.

The great black cockatoo is generally seen alone; never with more than one or two of its kind at a time. It frequents the lower parts of the forest, where it flies slowly and silently, feeding upon various seeds and fruits, and especially on the kernel of the kanary-nut. This nut



COCKATOOS.

grows on a lofty forest-tree, which is found in all the islands where the bird is found; and the manner in which the cockatoo gets at the seeds would seem to show that the kanary is intended to be its principal food.

So hard is the shell of this nut that it can be cracked only with a heavy hammer. Its outside is smooth, and it is almost triangular in shape.

The bird plucks off a nut, which it takes endways in its bill; and securing it by its tongue, it proceeds to cut a transverse notch by a lateral sawing motion of its keen-edged lower mandible. Next, it catches hold of the nut with its foot, and biting off a piece of leaf, keeps it (the leaf) firm in the deep fissure or notch of its upper mandible.

Again seizing the nut, which the elastic tissue of the leaf prevents from slipping, it inserts the edge of its lower mandible in the transversal cut, and by a sharp, strong bite breaks off a portion of the shell. Once more taking the nut in its claws, it insinuates into the interior the long, sharp point of its bill, and extracts the kernel, which is seized hold of, bit by bit, by the extensible tongue. Is not this a wonderful adaptation of *means* to an *end?* Every part of the bill, as we have shown, has its special use; and the kanary-nut seems as evidently created for the food of the cockatoo as the cockatoo to feed upon the kanary-nut.

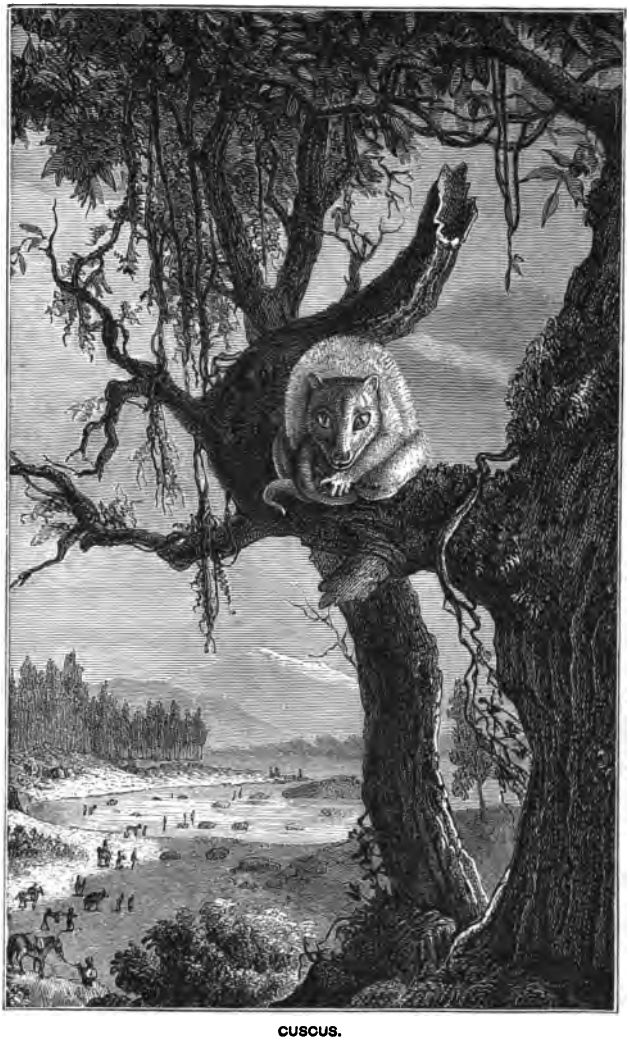
The dense and luxurious groves of these Eastern isles are pre-eminently the home of the Fruit-pigeons, whose plumage is probably unrivalled in the variety and brilliancy of its colouring; also of the Pittas, or East Indian thrushes, birds resembling the mavis in form and in style of motion, but in plumage as gaudy as our thrushes are plain.

THE MARSUPIALS.

Our description of the animal life of the Archipelago will fitly conclude with an allusion to its Marsupials, which are found only in the Eastern or Australian division; and this brings us naturally to our next section, Animal Life in Australia.

The Cuscus belongs to the Moluccas, New Guinea, and Amboina. The Latin name is adapted from the native *Couscous.* There are several species, chiefly distinguished by variations of colour. In size it is equal to a large cat;

measuring about three feet in length, of which the tail takes about one foot and a quarter. Its habits are arboreal; and with its long robust tail it loves to suspend itself to the nearest branch. When it apprehends danger, or that it may be seen by an enemy, it hooks itself on to a bough, and swings from it in the wind as if it were a bunch of dead fruit. This device may avail against most of its foes, but is powerless against man, who indeed contrives to profit by it. For so long as the cuscus thinks the hunter's eye is fixed upon it, it persists in preserving its attitude of *suspended animation*, and thus affords the hunter an admirable mark. The story runs, that if the man will keep his gaze steadily and unremittingly on the trickster, it will hang, and hang, until its muscles are unable to support it longer, and it falls helplessly to the ground.



CUSCUS.

CHAPTER VIII.

IN AUSTRALIA AND NEW ZEALAND.

THOUGH a considerable portion of Australia lies to the south of the Tropic of Capricorn, and consequently beyond the borders of the Tropical World, we shall include it in our present survey on account of its natural connection with the great Eastern Archipelago.

In so vast an area as the Australian "island-continent" comprehends, there must necessarily be great differences of character, and resulting differences of scenery and vegetation. Yet these differences are chiefly to be seen in the littoral regions; and the centre exhibits a remarkable uniformity of aspect. It was inferred, from the want of large navigable rivers, that no high land existed in the interior; and recent explorations have proved the accuracy of the inference, for the interior has been found singularly flat and low, intersected by broad patches of "bush," by immense marshes, by sandy deserts, and considerable breadths of pasture. It is probable that a very large portion of it will never repay the labour of cultivation.

None of the Australian rivers are navigable to any

great distance from their mouths. In the interior the scarcity of water is a serious evil, rendering colonization impossible,—such streams as do exist being torrents in the rainy, and scanty rills in the dry season.

It must be admitted, however, that *all* Central Australia is neither a sandy desert nor a swampy wilderness. Extensive areas are available for sheep-pasture, with scenery agreeably diversified by lakes and "creeks" of salt and fresh water.

VEGETABLE LIFE IN AUSTRALIA.

According to the physical character and climatic conditions of a country will be its vegetation, and that of Australia is, therefore, remarkable for its diversity. The forests present, nevertheless, a generally gloomy appearance, owing to their uniform verdure, which is not affected by the pleasant changes of spring growth and autumn maturity. Yet, says Count Strzelecki, amid this apparent sameness may often be found spots teeming with a gigantic and luxuriant vegetation; sometimes laid out in stately groves, free from thicket or underwood; sometimes opening on green glades and velvety slopes, brightened by rivulets, carpeted with the softest turf, and wanting only the thatched and gabled cottages, or village spire, to realize a truly English landscape. Sometimes, again, the forest skirts an open country of hill and plain, gracefully sprinkled with isolated clumps of trees, covered with the richest tufted herbage, and adorned with flowers of varied form and colour, though usually without perfume; or it is lost in immense thickets, where innumerable blossoming shrubs

and interwoven creepers form bowers as impenetrable and picturesque as those seen in the forests of Brazil.

ANIMAL LIFE IN AUSTRALIA.

Here, at the threshold, we meet with an extraordinary fact: three of the principal orders of the Mammalia are wholly unrepresented in Australia. It has no quadrumana, no pachyderms, and no ruminants: that is, it has no monkeys; neither elephant, rhinoceros, hippopotamus, nor deer; not a single hoofed quadruped, except those which have been introduced from abroad. On the other hand, it has no wild beasts of prey; neither lion nor tiger, bear, leopard, wolf, or hyena. Its indigenous animals are mostly inoffensive; and few, either from ferocity of disposition or the possession of poisonous qualities, are dangerous to man. Of the eleven or twelve species of carnivora which inhabit Australia, one only is a land-animal—namely, the *dingo*, or wild-dog. The alligator is, of course, amphibious; and the others, such as the sea-lion and the sea-bear, are marine.

It is obvious that beasts of prey could not exist in Australia, from the want of the animal life on which they feed; and monkeys are absent, because there are no fruit-trees. Yet Australia is not without an ample and interesting fauna. It is pre-eminently the land of the marsupials. This great order is divided into eight families, *seven* of which belong entirely to Australia and the Australian islands of the Archipelago. There are upwards of forty species of marsupials in the island-continent, of which scarcely any congeners occur elsewhere. These are dis-

tinguished from other animals by their young being, so to speak, prematurely born, and nourished by the mother in a kind of "pouch" until they reach maturity. In this peculiarity all the members of the tribe agree; but they differ much in appearance, internal structure, in their teeth and their feet, and consequently in their habits. Two genera live on vegetable food; one set are toothless; another set are rodents, or gnawers. Some walk on their hind legs; some on all fours: some burrow in the sand; some live among the boughs, taking flying leaps from tree to tree. They differ also in size, from the kangaroo, which attains the weight of two hundred pounds, down to the opossum mouse, which is scarcely half the size of a full-grown rat. Some frequent the plains, others wander among the mountains in numerous herds. Two are predatory and ferocious,—the pouched wolf and the Tasmanian devil,—but these belong to Tasmania.

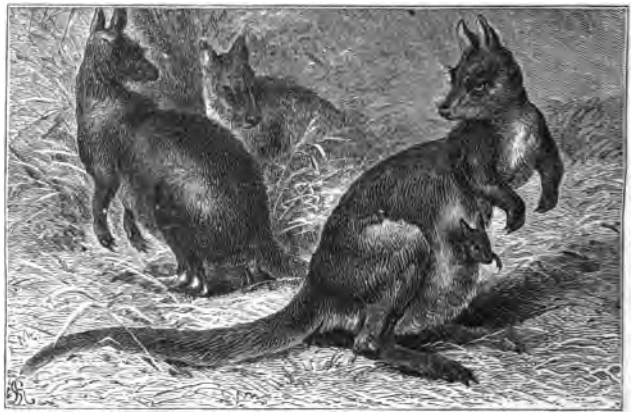
Let us now glance very rapidly at some of the more remarkable of these marsupials, and indicate their distinctive features.

The great Kangaroo measures about seven feet and a half in length; the head and body exceeding four feet, and the tail being rather more than three feet. When it sits erect after its peculiar fashion, resting upon its hind-quarters and its tail, as on a three-legged stool, its height will be about fifty inches; but when standing erect upon its toes, it will overtop many a well-grown man.

Though not absolutely a gregarious animal, the kangaroo is generally found in groups of seven to eight individuals; these individuals, however, scattering themselves over a

tolerably wide area, as if they did not care for a too intimate contiguity. Its food is entirely vegetable.

The kangaroo is much valued, both for its fur and its flesh, and, consequently, it is a favourite object of the chase. The native hunters, to effect its capture, resort to pitfalls, traps, nets, and other devices; or they contrive to surround a company of the animals when grazing, and at a preconcerted signal rush in upon them, and in the confusion that follows wield their spears and clubs with equal



KANGAROOS.

dexterity and success. The white men follow them up with dogs specially trained for the purpose; but some of the species prove formidable antagonists even to the strongest hounds. The so-called "Boomer," for instance, when it finds the dogs overtaking it, turns to bay, and placing its back against the trunk of a tree, so that it cannot be taken in the rear, defies its adversaries. Should

one of the dogs approach too near, the kangaroo aims a blow at it with its hind feet, so forcibly and dexterously that the long and pointed claw with which each foot is armed cuts like a knife, and rips open the entire body of the dog. But veteran hounds make no attempt to close with their dangerous opponent, contenting themselves with hemming it in until their master appears upon the scene with the fatal rifle.

When first born, the young kangaroo is exceedingly small; in fact, it does not exceed an inch in length; while it is soft, helpless, and semi-transparent. Being conveyed at once into the pouch, it instinctively fastens on one of the nipples,—which are very curiously formed, being retractile, like the finger of an unused glove, but capable, when they are needed by the young animal, of being drawn out to a considerable length.

In this natural cradle the young kangaroo spends the first eight months of its existence, until it weighs about ten pounds. As soon as it has acquired some degree of bodily power, it occasionally thrusts its head out of the pouch, with a not unintelligible curiosity to see what the world is doing. In course of time it gains sufficient strength to crop the more delicate herbage, to leave its pouch for a while,—always under the vigilant supervision of its mother,—to skip about and take its ease, returning to its comfortable *crèche* when it feels fatigued. At last the day comes when it sallies forth to return no more, and begins the world on its own account.

A marsupial of very different character to the kangaroo

—in truth, a pouched rodent, with most of the external peculiarities of the beaver—is the Wombat, or Australian Badger. As its body is bulky and its legs are short, it moves along with a heavy rolling gait, and is not difficult to capture.

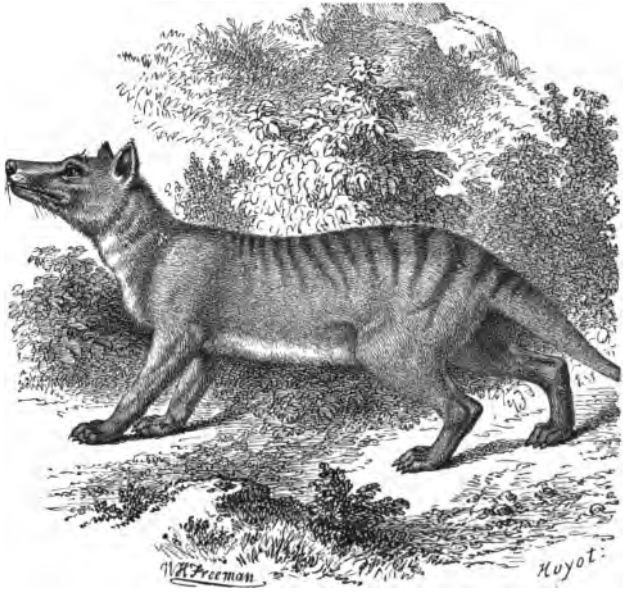
During the day it lies concealed in its burrow, which it

WOMBATS.

excavates with laudable industry, descending to such a depth, that to dig it out is an enterprise to be compared only to sinking the shaft of a mine!

The wolf of Europe is represented in Tasmania by the Dog-headed Thylacinus, or Tasmanian Wolf, which resembles the zebra in the beautiful dark stripes that variegate the grayish brown colour of its fur. Its thick head

recalls by its shape that of a powerful mastiff. It is a carnivorous animal, preying on the duck-billed platypus, the smaller kangaroo, mussels, crabs, dead seals, and fish.



TASMANIAN WOLF.

Its appetite seems boundless, and the nature of its digestion may be inferred from the fact that it devours the prickly echidna. It would banquet readily on sheep and poultry, had not the colonists waged against it an exterminating war, and driven the few survivors into the very heart of the jungle. It is a fierce bold animal, and when attacked will fight desperately, but it does not venture to molest man.

In ferocity, however, it is infinitely surpassed by the malignant animal which has received the not inappropriate name of the Tasmanian Devil. A naturalist of high standing has remarked that the innate and apparently ineradicable fierceness of this creature cannot be conceived by persons who have had no personal experience of its demeanour. Even in captivity, he says, its sullen and purposeless anger is continually excited, and it appears to be more obtuse to kindness than any other animal of whom we have practical knowledge. It attacks the hand that offers it food, and without cause dashes at the bars of its cage, and vents its passion in short, hoarse yells of rage. In a state of freedom its savagery, its incapability of fear, and its strong teeth and powerful jaws render it a formidable opponent, and scarcely any dogs, however robust, bold, and well-trained, can boast of having defeated it in single combat.

"The traps," says Wood, "in which these nocturnal robbers are caught are baited with flesh of some kind, generally with butcher's offal; for the animal is a very voracious one, and is always sensible to such attractions. Like the Tasmanian wolf, to which animal it is closely allied, it is in the habit of prowling along the sea-shore in search of the ordinary coast-loving molluscs and crustaceans, or in hopes of making a more generous feast on the dead carcasses which the tides will sometimes leave upon the beach. In captivity it will eat almost any kind of food, and is found to thrive well upon bread and milk, with an occasional addition of flesh. When it is indulged in the latter delicacy, it speedily tears in pieces the meat with

which it is furnished, and is in nowise baffled by the presence of moderately-sized bones, which it can crack with wonderful ease by means of its strong teeth and powerful jaws."

It frequents the depths of the forests, where it burrows in the ground, or seeks the shelter afforded by some natural hollow. Owing to the formation of its hind feet, it can sit erect on its hind legs, and carry its food to its mouth with its fore paws.

The edentates of Australia are not less remarkable than its marsupials, and there are few greater curiosities in natural history than the Ornithorhynchus and the Echidna, which seem to connect mammals with oviparous animals.

If any mythologist or poet had described a creature which to the head of a quadruped added the bill of a duck, we should have pronounced the conception anomalous and unnatural; yet such is one of the conspicuous peculiarities of the Ornithorhynchus, or Duck-billed Platypus, the "mullingong" of the Australian aborigines. Though not exceeding twenty or twenty-two inches in length, it has excited more interest than the most gigantic of quadrupeds, owing to its singular conformation. Its beak is so flattened and elongated as to present a striking likeness to a duck's bill. It possesses, also, great sensitiveness, and enables its owner to *feel* as well as *smell* the insects, worms, and molluscs on which it feeds.

The duck-bill possesses a thick soft fur, which dries very readily; its feet are provided with large and complete webs, so as to be used as paddles in the water; while the

hind feet are equipped with powerful claws, and can be used for digging purposes, and to such good effect, that the duck-bill will excavate a burrow two feet long, in hard gravelly soil, in about ten minutes! It swims with great ease, and apparently is as much at home in the

DUCK-BILLED PLATYPUS.

water as on the land. It lives in underground galleries, from twenty to forty feet in length, on the banks of streams and rivers; and these galleries have generally two entrances—one above and the other below the surface of the water.

Now let us turn to the Echidna, or Porcupine Ant-Eater, which externally has all the appearance of a porcupine, while its mouth and generic characters are those of an ant-eater. Its body bristles all over with hedgehog spines; and when alarmed, it rolls itself up into a ball, like the

hedgehog. On soil that is moderately soft its capture is almost impossible; for, collecting its legs under its body, it digs and digs with such rapidity and vigour as to accomplish its escape "in the twinkling of an eye!" Its limbs and claws are remarkably strong. It has no teeth, and catches the insects that form its food by means of its long extensible tongue.

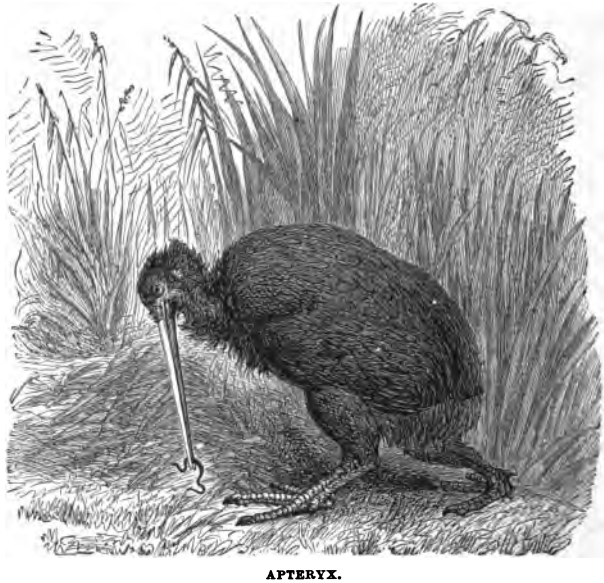
THE BIRDS OF AUSTRALIA.

Although, no doubt owing to their power of flight, the birds of Australia are by no means so distinctive as its mammals, still about one-half of the genera are confined to this region.

In New Zealand still survives the Apteryx,—a wingless bird,—but it is on the verge of extinction, and owes its partial preservation to its nocturnal and burrowing habits. It belongs to that curious category of anomalous animals of which Australia and its islands present so many remarkable specimens. Its head in shape is something like that of the ibis, with a long slender bill, adapted for foraging in the soil after worms and grubs; its legs and feet resemble those of the common fowl; and its wings are mere rudiments, and of no use for the purpose of flight. The comparatively small wings are distinctive of the whole family: the rhea and ostrich have the largest, and though unavailing in flight, they assist the birds in running; the wings of the emeu and apteryx are employed as weapons of defence, though all the tribe defend themselves by kicking.

The geographical distribution of the Struthious, or

Wingless Birds, may here be noticed. As they can neither fly nor swim, it is obvious they cannot have passed from one continent to another, or from island to island. To each of five distinct genera, therefore, a separate region



APTERYX.

has been allotted: to the ostrich, all Africa from Arabia to the Cape of Good Hope; to the rhea, South America; to the emeu, Australia; to the cassowary, the Australian section of the Eastern Archipelago; and to New Zealand, the apteryx.

In some of the later geological formations of New Zealand the remains have been found of a large group of struthious birds, which have become extinct within a

comparatively recent period. One of its genera, the dinornis, is represented by several species: the largest of which, the dinornis giganteus, attained a height of eleven feet, or double that of the largest ostrich; another, the palapteryx, upwards of nine feet. The discovery of this extraordinary group was a singular illustration of felicitous scientific conjecture, founded on the principles of comparative anatomy. A small portion of a bone, which, from its size, appeared to have belonged to a quadruped as large as an ox, was forwarded to Professor Owen for examination. He immediately declared that, from its structure, it was the bone of a bird of the ostrich kind; and his bold hypothesis was soon confirmed by the discovery not only of the complete skeleton of the bird, but of its eggs.

The notornis, another extinct bird, nearly akin to the water-hen, and about as large as a bustard, was also an ancient inhabitant of the islands collectively called New Zealand; where birds did and do exist almost to the entire exclusion of quadrupeds and reptiles—an extinct species of dog, and a rat which is by no means extinct, were the only land animals that shared these fertile islands with the myriads of the winged race. The nestor, an owl-like parrot only found in New Zealand and Philip Island, has, through the introduction of the cat and dog, been almost exterminated. In a few years it will probably be extinct.

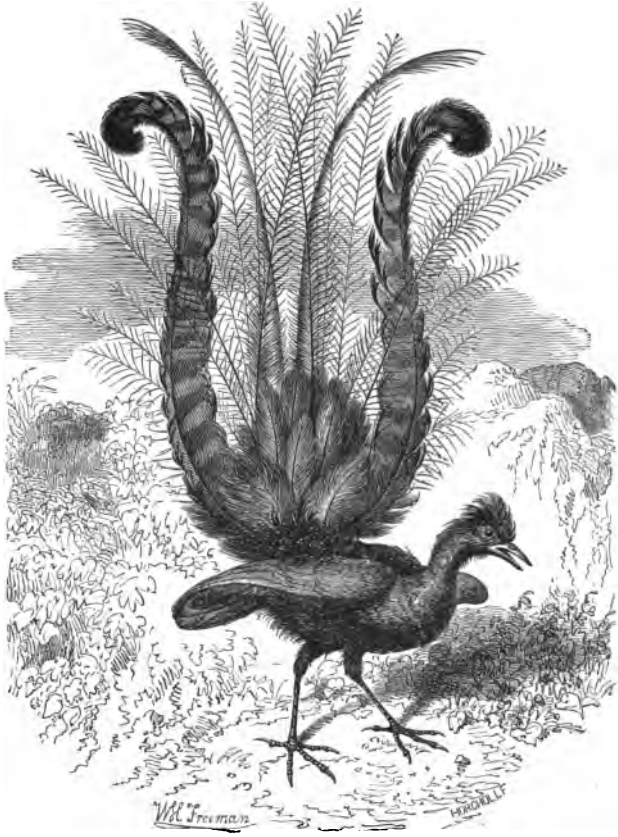
New Zealand has also its parrots and parrakeets, its doves and pigeons, song-birds in considerable variety, numerous small birds, and abundant water-fowl; amongst others, a web-footed cormorant, which, like the osprey,

plants itself on the trees that overhang the streams or the sea, watching for fish; also, a snow-white frigate-bird, of marvellous power of wing, which rises high into the air, and thence darts, like an arrow, upon its prey. The tui, or parson-bird, also belongs to New Zealand. It is handsome, active, and lively; has a wonderful faculty of imitating the human speech; and derives its name from the white collar on its breast, which contrasts so vividly with the rest of its jet-black attire.

SOME REMARKABLE BIRDS.

The post of honour we shall give to the Lyre-bird (*Menura superba*), in recognition of its peculiar beauty. It is not much, if at all, larger than our English pheasant; but its limbs are proportionately longer, and its feet are bigger. Its distinctive feature, and the one to which it owes its name, is its tail, the plumes of which, when erect and expanded, bear a striking resemblance to the shape of the ancient lyre. One can fancy what graceful myths and bright poetic fancies this resemblance would have suggested to the Greek poets, and how certainly they would have associated this bird, had they known it, with Mercury, the inventor of the lyre. The framework consists of two large, broad, black and brown striped feathers; between which floats, as it were, a network of other feathers, the wide-apart silken barbs of which surround and surmount them with a delicate, gossamer-like meshwork.

Mr. Gould, the great authority on Australian birds, says that the menura is very difficult to procure. While wandering among the bushes on the coast, or on the



LYRE-BIRD.

mountain-slopes in the interior, he would be frequently surrounded by lyre-birds for days together, hearing them pour forth their long and liquid calls, and yet unable to procure a sight of the coveted prize.

In truth, the restless activity of the menura is something remarkable. It is continually traversing the underwood from mountain-peak to the bottom of the ravines, its robust muscular thighs and long legs enabling it to stride over every obstacle. While thus engaged it carries its beautiful tail horizontally. In addition to its loud resonant call, which is audible at a considerable distance, it utters an inner and varied song, with such low sweet notes that it can be heard only within a few yards of the singer. Besides their natural song, they also imitate the notes of other birds so accurately as to deceive not only the ornithologist but the birds themselves.

The plumage of this fine bird is generally of a brown colour; but it is warmed with flushes of red on the secondary quills, the upper tail-coverts, and the chin and throat. The lower surface is tinted a brownish-ash. The total length of the bird is about three feet and a half.

We are all aware that the birds build their nests as resting-places for themselves and asylums for their young. Yet, as Australia is the land of contradictions, it is not surprising, perhaps, that it should give birth to a bird which differs in this respect from all its kind—which builds a nest; it is true, but as a place of recreation, and not for the purpose of incubation.

Such is the case with the Bower-bird.

Its wonderful construction is a kind of gymnasium or playing-room. In many instances it is three feet in length. Externally it is built of twigs, and this rude framework is ingeniously lined with tall grasses, so disposed that their

heads nearly meet; the decorations are very profuse, and consist of bivalve shells, the crania of small mammals, and of other birds. Evident and beautiful indications of design are manifest, says Mr. Gould, throughout the whole of the bower and decorations formed by this species; particularly in the manner in which the stones are placed within the bower, apparently to keep the

SPOTTED BOWER-BIRDS AND THEIR NEST.

grasses with which it is lined fixed firmly in their places. These stones diverge from the mouth of the run on each side, so as to form a little path, while the immense collection of decorative materials is placed in a heap before the entrance of the avenue; this arrangement being the same at both ends.

Mr. Gould tells us that he frequently found these extra-

ordinary erections at a considerable distance from the rivers, from the banks of which alone could the birds have procured the shells and small round pebbles; their collection and transportation, therefore, must have been a work of great labour and difficulty. As these birds feed almost entirely upon seeds and fruits, the shells and bones cannot have been collected for any other purpose than ornament. And, moreover, it is only those that have been bleached perfectly white in the sun, or roasted by the natives, and by this means whitened, that attract their attention.

It seems certain that the curious structure thus laboriously built up and decorated is used simply as a place of resort for numerous individuals of both sexes, which play about the platform, and run in and about the bower, for the obvious purpose of amusing themselves. Probably it is chiefly patronized at pairing-time, and during the period of incubation, though Mr. Gould states that the bower is seldom entirely deserted. A very universal taste seems to be shown by the birds in the embellishment of their favourite resort; and the natives are so well aware of their habit of carrying off any articles that are bright or gay, that, on losing their property, they immediately seek for it in the nearest "bowers," and seldom without success.

Our notices of the Australian birds may be concluded with a reference to the celebrated Black Swan, that "rara avis" of the ancients, which, in the Australian continent, is sufficiently common.

It is an inhabitant of various parts of Australia, and

formerly gave its name to the colony of Swan River, now known as Western Australia. Its plumage is wholly black, with the exception of the wing-quills, which are white, while on the lower part of the body the black fades into a dull ashy or cinereous colour.

The black swan does not differ in its habits from its better known congeners, but appears to be somewhat their inferior in strength.

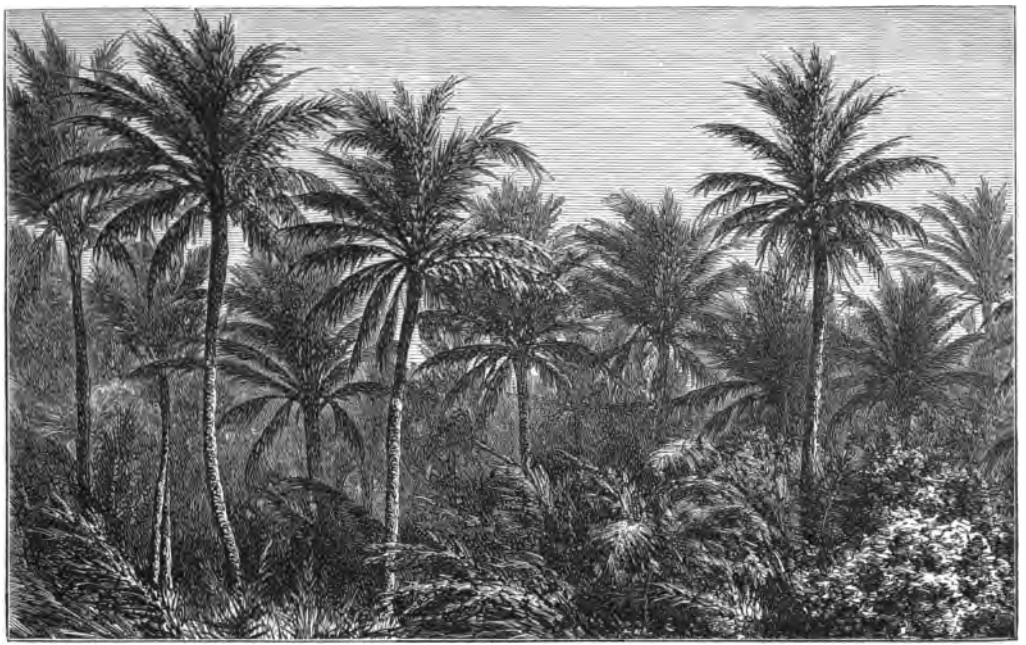
CHAPTER IX.

HINDUSTAN AND CEYLON.

A CONSIDERABLE portion of Hindustan, and the rich island of Ceylon, lie to the south of the Tropic of Cancer, and the animal life of these regions may, therefore, be conveniently included in our sketch of the animal life of the Tropical World.

The physical features of the region lying between the snow-capped Himalayas and Ceylon—"the Resplendent," as it is called in Sanskrit—are too well known to require description. It is one of Nature's most favoured regions, and probably nowhere on the surface of the globe is there a richer valley than that of the Ganges. Wheat and other European grains are grown in its upper parts, while in the south the exuberant soil produces large crops of all kinds of Indian fruits, sugar, rice, opium, indigo, and cotton.

The vegetable wealth of Ceylon alone would supply the material for an interesting volume. Here the cocoa-nut grows in unsurpassed luxuriance and in countless numbers, each tree producing from fifty to one hundred nuts a year. The Palmyra palm is scarcely less important: its leaves



COCOA-NUT PALMS, CEYLON.

are used for mats and roofing, as well as a substitute for paper; a nutritious jelly is made from the fruit; and toddy is also extracted from it. The sap of the *killed* tree furnishes a kind of coarse sugar; while its fruit, when dried and pulverized, is used instead of rice flour. Bread-fruit trees abound, and taliput palms; and the jack trees, the timber of which is much valued, because it resists the attacks of the white ants.

ANIMAL LIFE IN HINDUSTAN AND CEYLON.

As a general rule, a copious flora means a copious fauna. Where an abundance of vegetable food prevails, those genera of animals which live on seeds and fruits and leaves will necessarily multiply, and as a consequence will afford sustenance for the carnivores. Animal life is favoured by the conditions which favour vegetable life, unless the growth of the former should have been checked by exceptional circumstances. The Indian zoology, at all events, is marvellously ample. The naturalist stands almost aghast at the number and variety of the wild as well as domesticated animals which range from the Himalayas to Cape Comorin, and from Coromandel to Malabar. There are no fewer than sixty genera of carnivores alone; and who shall tell of the numbers of birds, reptiles, and insects, to say nothing of that host of quadrupeds which are not carnivorous?

In speaking of the carnivorous animals of India, our thoughts naturally recur to the Tiger, which stands pre-eminent among the beasts of the field for handsomeness, daring, and cruelty. He is so fierce and cruel that one

might suppose his blood to be heated by the burning rays of the Tropical sun; that sun, under whose blazing orb he spends the twenty years of his predatory life. His original habitat seems to be Hindustan, and he loves

> "The hills with peaky tops engrailed,
> And many a tract of palm and rice;"

but he ranges to the north-east as far as Chinese Tartary and the mountain-range of the Altaï.

There is something splendidly brilliant in the general appearance of this formidable quadruped. The bright orange-yellow which forms the ground-colour of his hide

TIGER.

is richly barred with a succession of transverse bands of shining black. The face, throat, and under side of the belly are nearly white, but similarly diversified; only the stripes are smaller about the face and breast than elsewhere, and on the tail they form so many rings. These

colours are singularly bright when the animal is healthy and free, roaming at will his native jungle; but they speedily lose their lustre when he is detained in captivity. In size he is generally inferior to the lion, but individual examples surpass that famous quadruped, and have been known to measure fifteen feet from the nose to the tip of the tail.

His frame is very robust, muscular, and well-knit. His agility is astonishing, and when pursuing or pursued he clears the ground with the most surprising leaps. In a single spring he has been known to cover as much as fifteen or twenty feet. When he seeks his prey among the lower valleys of the Himalayas, he will leap from crag to crag, and cross frightful chasms, as readily as the chamois; though it is said that he sometimes miscalculates his distance, and falls headlong into the abyss below, a victim to his unthinking greed of blood.

Like all the Felidæ, or Cat tribe, he is distinguished by a strong vitality; and this tenaciousness of life renders tiger-hunting on foot very dangerous. Even if the hunter feels a sufficient confidence in his own skill and presence of mind to permit the approach of the tiger within a distance that will make certain his hitting him between the eyes, he still incurs a formidable risk; for even a bullet in the head will not always arrest the furious creature's onset. There are well-authenticated instances on record of tigers running a considerable distance after they had received a mortal shot. A Madras sepoy was once measuring a tiger that had just dropped, and lay to all appearance dead. But the expiring monster collected his energies, and

dealt the unfortunate soldier a blow which fractured his skull.

The chances in tiger-hunting are numerous, and they who undertake so perilous a sport carry their lives in their hands. Some remarkable escapes have been related. Two English officers, Lieutenant Rice and Cornet Elliot, had, on one occasion, pursued and wounded a tiger, which, forcing its way through the rank, luxuriant jungle, was quickly out of sight. By the blood-drops that ebbed from the creature's wound, and his broad footprints, they contrived to track him, though not without difficulty, through a dense clump of tall grass and thorn bushes, keeping their attendants together in a tolerably compact body, while they themselves led the way.

After a while they got clear of the labyrinth, and entered upon an open country, where the trail of the tiger was lost. Rice and Elliot then pushed on a few paces ahead, in order to examine the ground carefully before it was trodden down by the feet of their numerous followers. While they were thus engaged, a loud roar broke suddenly on their ears, proceeding, as Lieutenant Rice imagined, from a small ditch a few paces to the right.

At this time Cornet Elliot was stooping on the ground, anxiously inspecting it for traces of the lost animal's footprints. After the roar came a tigress, bounding forward with terrific velocity, and making straight for Lieutenant Rice. He had scarcely time to discharge both barrels of his rifle, at only two or three paces' distance, into her chest, when either the shots or the smoke made the beast swerve past him, and dash straight at Elliot, actually leaping upon

him before he had time to get his rifle ready. The next instant he fell backwards under the tigress, which kept him down with her formidable paws.

Fortunately, the shikarees (that is, the Indian attendants) preserved an unusual degree of steadiness, and quickly handed to Lieutenant Rice his spare guns, ready loaded. Rice immediately fired a couple of shots at the beast's shoulder, as she stood over his prostrate comrade; but with little effect. For she at once began to drag Elliot backwards by the upper part of his left arm, which she had seized in her cruel jaws; and then down a gentle declivity towards the ditch where she had first lain concealed. The ground was very uneven, being covered with boulders and fragments of rock; so that it was dangerous for Rice to fire again, lest he should hit his friend instead of the tigress.

While carried along in this terrible manner, Elliot fainted. The tigress continued her hoarse growl, all the time fixing her burning eyes on her pursuers, who followed at about ten paces off, watching to get a good shot at her head, and so conclude the struggle. At last, after aiming twice or thrice in vain, Lieutenant Rice observed his opportunity: his rifle blazed; and instantaneously the tigress dropped dead, with a ball through her brain.

Elliot was now rescued from his terrible position. He had recovered his senses, and asked for a draught of water. We need hardly say that he was sorely bruised and bitten; his left arm was crushed; and his whole body bore marks of the recent encounter. When the tigress first sprung upon him, he had warded off her tremendous paw with his

uplifted musket, and thus saved his head from a blow which would probably have been fatal. The stock of the rifle was marked with her claws, while the trigger and guard were crushed completely flat.

If tiger-hunting were pursued solely for the purpose of sport, we might be justified in censuring the bold but reckless men who expose their lives to such awful risks. But, in truth, every man who slays a tiger in India slays a public enemy, and deserves a public reward. Every year a considerable loss of human life is caused by the fearless rapacity of this monster, which, issuing from his jungle lair, breaks into the unprotected villages, and carries off men, women, and children. Some idea of the havoc they commit may be gathered from the fact that, according to Government returns, three hundred men and five thousand head of cattle were destroyed in a single district during three years.

While confined to the forest, the tiger may be regarded as comparatively harmless. There, feeding principally on deer, he seldom encounters man; and when the solitary hunter *does* come in sight of the "grim tyrant of the woods," an instinctive fear of the human race bids the latter retreat. But in the open country his nature undergoes a change. Hunger awakens his fellest passions, and he seeks his prey anywhere and at any time. Still, he shrinks at first from attacking man, unless incensed or urged by desperation. But all his fear of humanity disappears after he has once tasted human blood. Then he deserts the jungle, and haunts the very doors of the village-

huts. He will let the cattle pass unmolested, in order to pounce upon their drivers. Thenceforth he becomes a man-eater!

Consequently, the hands of all men are against him, and they endeavour to compass his destruction by a hundred devices.

The range of the Panther and the Leopard, both of which belong to the Felidæ, is more extensive than that of

PANTHER.

the tiger. They are found throughout the regions of the Tropical World; not in Asia only, but in Africa. In India and the Indian Islands panthers are very numerous. They are sleek, supple, handsome animals, and their skins

are valued highly. They pursue and seize their prey in the same way as the tiger; frequenting the skirts of the wood and jungle, and leaping upon any passing animal with a swift tremendous bound. The panther is more difficult to elude than even the tiger, on account of the dexterity with which it climbs the trees and springs from branch to branch.

One of the principal quadrupeds which belong to the Indian fauna is the colossal pachyderm, most sagacious of beasts, the Elephant. He is the largest terrestrial animal now in existence. Huge, heavy, unwieldy, his external appearance scarcely supports that character for sagacity and docility which he has borne so long, and not undeservedly. At the shoulder he measures from eight to ten feet in height; the body weighs on an average five tons. Such a bulk is necessarily carried upon limbs of proportionate size and strength; and, indeed, they are distinguished by a peculiar solidity of construction, each bone resting vertically on that beneath it. This gives them an appearance of inflexible rigidity, which led the ancient naturalists to believe that they were destitute of joints. An absurd notion, which, says quaint Sir Thomas Browne, "is seconded by another, that, being unable to lie down, it sleepeth against a tree; which the hunters observing, saw almost asunder, whereon the beast relying, by the fall of the tree falls almost down itself, and is able to rise no more."

It is true that the elephant, when sleeping or resting, will frequently support himself against a tree or rock; but

his limbs are sufficiently flexible to permit of his maintaining a race with a horse of ordinary speed, of ascending or descending abrupt declivities, and occasionally indulging in frolicsome gambols. It is not often that he lies down; and if the keeper of a tame animal finds him prostrate, he concludes that he is suffering from disease. It is related of an elephant which belonged to Louis XIV., that for five years he preserved an upright position, supporting himself during his sleep by thrusting his tusks into two holes which he had excavated in the stone wall of his den.

He is very sure-footed, and, even when loaded, descends a steep declivity with the greatest certainty. First he kneels, with his chest and belly on the ground; then each fore foot is employed in making a hole for itself, into which, slowly and cautiously, the hind feet are inserted. As described, the process seems slow and laborious, but he accomplishes it with so much dexterity that he will go down-hill as quickly as a horse.

Certain peculiarities of his structure force themselves at once upon our notice. The head is not disproportionately large, but the neck is short and thick. In the lower jaw there are no incisor teeth, and no canines in either jaw. The upper jaw has a couple of incisors, more generally known as *tusks;* yet, strictly speaking, they are neither incisors nor tusks, for they have not the situation of the former, and they do not serve the purposes of the latter. French naturalists appropriately designate them *défenses*, in allusion to their use. They sometimes attain an enormous size—nine to ten feet in length—and weigh from 150 to 300 pounds each. With these they are able to root

up trees, carry logs of timber, pile up large stones, or pierce the thick hide of an enemy of their own kind.

The value of the ivory obtained from the elephant's tusks is so great, that in many parts of India and Ceylon the capture of the animal is undertaken on a large scale. Moreover, he is useful as a beast of burden; and in our Indian campaigns he has been extensively employed in the transport of artillery and stores.

In Ceylon a gigantic trap is constructed, called a *corral*. This corral is a rectangular enclosure, about half as wide as it is long, or 600 feet by 300 feet. It is formed by a kind of rampart or barrier of stout poles, lashed together with the pliant stems of creeping and parasitical plants. These are set in the ground very firmly, at a height of about fifteen feet, the space between each pole being just wide enough to admit of the passage of a man's body. Outside the rampart strong buttresses of green timber are built up, so as to protect it from external pressure. At one end is left an opening, through which the elephants may be driven into the interior; and from each corner of the entrance runs a line of stout palisading, continued far in amongst the forest-trees. The object of this arrangement is, that if the herd should turn aside to the right or left, they may find escape impossible, and be driven back to the entrance.

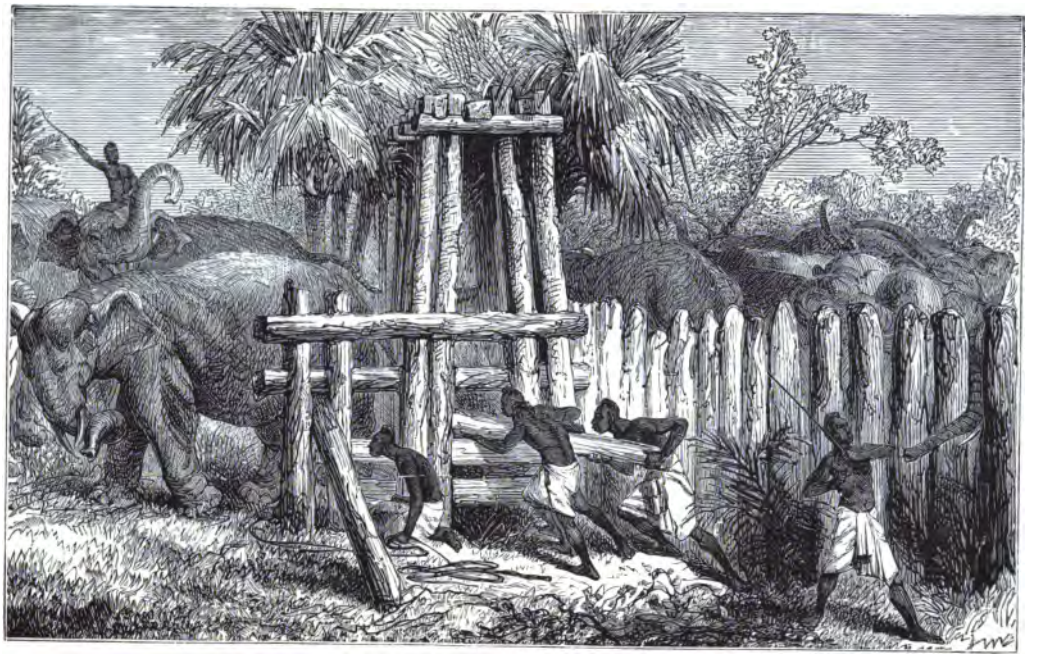
Elephant-hunting is seldom undertaken until the rice season is over, in order that it may not unnecessarily interfere with agricultural operations. It tasks the industry of a considerable number of natives to make the corral effective; and as they know very well that little rice will be

secured for their garners if many wild elephants remain at large, they are usually very ready to volunteer their services. To those thus assisting a reward is paid by Government.

The corral is always set up in a route much frequented by elephants on their periodical migration to the water, and the trees and brushwood around it are left undisturbed. As beaters, a host of men are employed, who describe an entire circuit round the locality where the elephants are supposed to have collected.

At first they advance very slowly and cautiously, in order to induce the wary animals to proceed in the desired direction. A month is frequently occupied in this preliminary movement, until the circle of the beaters is finally contracted to one-half its original radius. The elephants by that time have taken the alarm, and the beaters on their part gain courage. At intervals of two paces round the ring great fires are kindled, which blaze both night and day, while headsmen gallop to and fro that no one may neglect his duty; for if the herd discovered a gap in the circle, they would quickly accomplish their escape.

In a corral of which Sir Emerson Tennent was an observer, two months were occupied in these preparations; and they had been thus far advanced when he and his suite (he was then Governor of Ceylon) arrived on the spot, and took up their places on a platform specially erected for them, overlooking the entrance to the corral. Close beneath them a group of tame elephants, sent from the temples and by the native chiefs to assist in securing the wild ones, were picketed in the shade, and fanned them-



A CORRAL IN CEYLON.

selves lazily with leaves. Three distinct herds, numbering between forty and fifty elephants, were enclosed, and at that moment were concealed in the jungle within a short distance of the stockade. Not a sound was to be heard; each person spoke to his neighbour—if he spoke at all—in a subdued whisper; and so profound was the silence maintained by the battalion of watchers at their posts, that the listener could sometimes hear the rustle of the branches as some of the elephants stripped off their leaves.

Suddenly the signal was given. The stillness of the forest was broken by the discordant cries of the guard, the rolling of the drums and tom-toms, and the rattle of musketry; and beginning at the farther side of the area, the elephants were driven towards the entrance to the enclosure.

The watch-fires were replenished, and threw up large columns of flame, which seemed to trace out an impassable ring in the woody wilderness.

Thus surrounded, alarmed, goaded, and incensed, the herd of mighty animals rolled onward resistlessly to the only spot which seemed free from their tormentors—the dark, obscure, and silent corral; and immediately its gate was closed upon the struggling mass. Then, with a strange, wild effect, immense bonfires were kindled all around the trap, revealing the picturesque aspect of the scene.

The elephants, startled by this sudden illumination, first dashed to the very extremity of the enclosure; but being arrested by the powerful barrier, started back to regain the gate, which they found closed upon them.

Their terror rose to the height of sublimity. They swept round the corral at a rapid rate, but seeing it hemmed in by flames on every side, attempted to break through the enclosure. The guards, however, were all on the *qui vive*, and drove them back with spears, volleys of musketry, and blazing torches; so that, on whatever side they approached, they were speedily repulsed. Collecting into one compact body, they paused for a moment in evident indecision; then they dashed off in another direction, as if to essay some point they had previously overlooked; but being again baffled, they returned to their rendezvous in the middle of the corral.

Further proceedings were deferred until the morrow; when, on visiting the corral at daylight, Sir Emerson Tennent found the captives completely overcome, and huddled together in a disconsolate and shame-stricken group, while all sides of the enclosure were guarded by crowds of men and boys, with spears, or white-peeled wands about ten feet in length.

New actors now appeared upon the scene, and the proverbial influence of the female sex was brought to bear upon the captive but untamed leviathans. Among the she-elephants employed on this occasion was one named Siribeddi: she had earned a reputation for her skill as a decoy, and now did her best to justify that reputation. It would seem that she was fully aware of the kind of work expected from her, and entered into it with manifest eagerness.

For she made her way into the corral with a stealthy step and a cunning air of tranquil innocence, proceeding

leisurely in the direction of the captives, and pausing occasionally to gather a tuft of grass or to pick a few succulent leaves. When she drew near the herd, they on their part put themselves in motion to welcome her; and their leader—their Achilles or Nestor—advanced a few paces before the rest, passed his trunk over her head with a gentle caress, and then retired slowly to his companions. Siribeddi followed with the same leisurely step, and drew herself close up in his rear, to enable the native who acted as "nooser," and who had followed stealthily behind, to slip the noose over the hind foot of the wild elephant. The latter, instantly conscious of intended danger, shook off the rope, and turned to attack the man, who must certainly have perished had not Siribeddi lifted her trunk, and forced the assailant back among the herd.

Once more the affrighted beasts huddled together in the centre of the corral; when two more decoys were sent to Siribeddi's assistance, and the three contrived to detach from the herd the largest elephant.

This time the nooser contrived to secure the rope over the animal's hind leg, and then, with the two decoys, retired, leaving Siribeddi to complete the entrapment. Accordingly, she drew off her victim, tail first, towards the proper tree. Twisting her end of the rope once round the trunk, she endeavoured to haul her prisoner close up to it; but the feat proving beyond her strength, one of the other decoys came to her assistance, placed herself opposite the groaning leviathan, and with her shoulder against his literally backed him towards the tree; Siribeddi,

meanwhile, hauling in every foot of rope thus gained, until the monster was completely in the toils. The other decoy then advanced, and under the protection of the three tame elephants the nooser fastened his rope round the brute's other legs, securing each end to a tree, and the capture was complete.

Our authority tells us that when the decoys had retired the prisoner seemed to awake all at once to a full consciousness of his position. Hitherto he had remained comparatively calm, and had endured the treatment to which he had been subjected with dignified composure; but, on finding himself alone, he made the most surprising efforts to effect his escape and rejoin his companions. He felt the ropes with his trunk, and made an attempt to unloose the numerous knots; then he drew backwards to disentangle his fore legs, and leaned forward to release the hind ones, until the tall trees shook like a reed with his furious and continual struggles. In his desperation he literally *screamed*, raising his trunk aloft; and at last, like a man who feels he has done all, and can do no more, he fell on his side, laid his head close to the ground, and pressed down his doubled-in trunk, as though to bury it in the earth; suddenly starting to his feet, he balanced himself on his forehead and fore limbs, and gave unmistakable indications of frantic grief. This scene of misery lasted for some hours, interrupted only by occasional pauses of apparent stupor; after which the struggle was renewed at intervals, abruptly, and as if on some sudden impulse. Finally, the captive recognized his captivity, abandoned his useless struggles, and stood

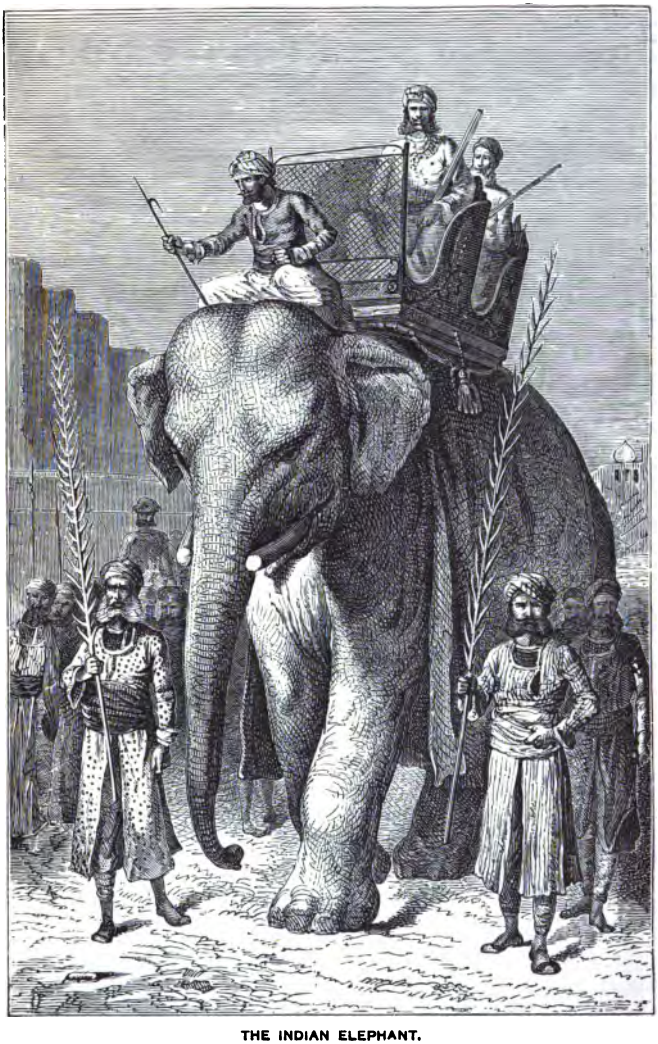
perfectly motionless, the image of exhaustion and despair.

In this way at length each captive is brought into a submissive state of mind, and a stall being allotted to him between those of two half-tamed elephants, he soon grows reconciled to his lot, and recovers his appetite.

Thus subjugated by man's activity, courage, and perseverance, aided by the craft of his own kind, the terrestrial leviathan, which once stalked at will through the leafy glades of the forest, may be found treading clay in a brick-field, or figuring in the pompous ceremonies of an Oriental court. In the latter capacity, however, he does his duty admirably, and displays a gravity and a dignity of bearing quite in harmony with the stately character of these magnificent pageants. He is the favoured "charger" of the Indian princes; who, borne in state on his massive shoulders, and attended by their guards and musicians, frequently parade through the lands which own their rule.

Everybody has heard of White Elephants. They are confined, however, to the Burmese Empire.

The so-called white, or rather yellowish-white elephant is merely an albino variety, and it is on account of their rarity only that these monstrosities are prized. In Siam they are regarded with special consideration, amounting almost to superstitious observance. They are attended by fearful and trembling slaves; their food is luxurious, and they are splendidly housed; and when they exhibit any signs of ill-temper the people cover their heads with alarm



THE INDIAN ELEPHANT.

and deference. We read of a Siamese white elephant which provoked almost incessant hostilities between two nations or tribes for nearly a century. It cost, we are told, the blood of five kings and of thousands of soldiers. The monster was a Moloch, and human sacrifices were offered to it.

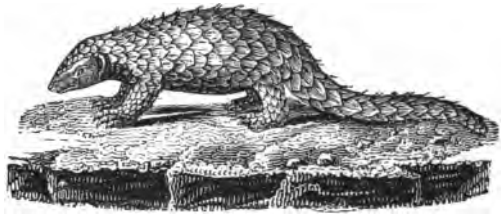
The Burmese seem to cherish an equal veneration for the white elephant, and will break off the most solemn negotiations, or interrupt the most important enterprise, if he should give an inopportune grunt. In Siam he is as much a sign and appanage of royalty as, in Europe, the crown or sceptre. Royalty, says Mr. Crawfurd, is incomplete without him; the more white elephants there are, the more perfect is the state of the kingly office considered. Both the court and the people would deem it most inauspicious to be without a white elephant. Hence the repute in which this animal is held, the anxiety to obtain him, and the high reward given for his capture.

Proceeding with our description of the Indian fauna, we pass over the Wild Boar, as its characteristics are well known, and come to the group of Edentates, represented by the Manis, or Pangolin.

Both in the peninsula and in Ceylon is found the Short-tailed Manis, also known as the Scaly Ant-eater, and by its Malay name of Pangolin—which alludes to its faculty of rolling itself up into a compact ball, by bending its head towards its stomach, curving its back into a bow, and securing itself in this position by a powerful grasp of its mail-covered tail. When at liberty, it excavates a

burrow in the dry ground to the depth of seven or eight feet, where it resides in pairs; and the female gives birth to two or three young.

In captivity the Manis is gentle and affectionate, and it is of great service in destroying the ants which infest Cingalese dwellings. All the species are curiously clad in an armour of sharp-pointed and keen-edged horny plates, lying with their points directed towards the tail, and over-



SCALY ANT-EATER.

lapping each other like the slates on the roof of a house. This coat of mail is not only defensive, but offensive; for when the animal coils itself up, the scales project their sharp points and edges in such a manner as to inflict severe wounds on the man or animal that ventures to touch them.

If we extend our survey from the Indian Peninsula to Malacca, we shall find there two remarkable mammals, the Malayan Tapir and the Babyroussa.

The former is a remarkably conspicuous animal; the deep dingy black ground-colour of its body being startlingly varied by a broad belt of white that completely surrounds back, flanks, and belly like a bandage of linen. In its

BABYROUSSAS.

habits it resembles the American tapir,—being very fond of water, and frequenting the dense jungle on the banks of

the pools and rivers. Its food is almost entirely vegetable.

The Babyroussa attracts attention by the singular arrangement of its formidable tusks, all four of which project *above* the snout. The two on the lower jaw curve upward on each side of the upper, as is the case with the ordinary European boar; but those of the upper jaw are very peculiar in their direction—their sockets, instead of pointing downwards, are turned upwards, so that the tooth passes through an aperture in the upper lip, and curls boldly over the face. In size and curve, however, the tusks vary in different individuals, and the female does not possess the upper tusks. They do not seem to be employed as offensive weapons.

It is otherwise with the lower tusks, which can inflict very severe wounds; and the hunter in his pursuit of the babyroussa frequently finds it a formidable adversary. It is a capital swimmer, and takes to the water for its own pleasure. Its food is vegetable, and it lives in herds of considerable size, in the warm and marshy districts of the Malayan Peninsula.

BIRD LIFE IN INDIA.

It has been justly said that the great peninsulas on each side of the Ganges are inhabited by the most peculiar and the most gorgeous of birds. Here are found numerous genera of kingfishers, resplendent in the most brilliant tints; flycatchers, with plumage of the richest metallic lustre; shrikes, glittering in all the colours of the rainbow;

the calyptomene, clad in a coat of emerald green; and the drongo, glorious in a coat of deepest blue.

This last is the Paradise Drongo, which carries a crest of feathers on its head; while the two outer feathers of the tail are considerably elongated, so as to form two long naked shafts, terminated by small palettes formed of barbs. As it imitates the strains of all other birds, the Hindus call it the *Huzar Dastan*, or "Bird of a Thousand Tales."

The Scansorial Birds of India are very handsome. Among these we may particularize the Alexandrine Parrakeet; which was the only species known to the Greeks, and is supposed to have been introduced into Europe by the soldiers of Alexander the Great. It measures about fifteen inches in length, and is of a beautiful bright green colour. The lesser wing-coverts are purplish red, and a rich collar or ring of the same colour runs across the back of the neck, with a black line on its upper rim. This fine bird is easily tamed, and as easily taught to speak a few words.

The Indian Trogons are scarcely less brilliant in their plumage than their American congeners. They frequent the lofty trees of the jungle solitudes, where they may be seen perched motionless on a branch, occasionally darting off in pursuit of some flying insect.

Eastern Asia is celebrated for the variety of its gallinaceous birds, and these are distinguished by the gorgeousness of their plumage. Our domestic fowls come from the

Indian regions; and two species of peacock inhabit the dense woods of Ceylon and Hindustan. The polyplectron, the only bird of its kind, and the tragopan, are Indian; while among the most brilliant birds of the East must be

IMPEYAN PHEASANT.

included the splendid-plumaged pheasants. Five species of these are peculiar to China and Tibet, but a still larger number frequent the lower slopes and sheltered valley-plains of the Himalayas.

Their favourite haunts are the woods and copses, in the

neighbourhood of a running stream or tranquil pool. They live upon all kinds of wild fruit, on berries, seeds, herbage, acorns, ants and their larvæ, and insects *ad libitum*. Their habits are entirely terrestrial, and they walk and run along the ground in the same manner as the common fowl, but with superior ease and greater swiftness.

The domestic Peacock, which figures so handsomely in our English parks and terraced gardens, is indigenous to India. He is still found in large companies, frequenting the forest-glades. In some localities he and his kind are so abundant that Colonel Williamson, in one day, counted between twelve and fifteen hundred.

So swift of foot is the peacock that he will outstrip the pursuing dogs; but he takes to the wing only with laborious effort, and flies slowly, though he can prolong his flight to a considerable distance. He feeds on grain of all kinds, swallowing it without the trouble of trituration. In the evening he retires to roost on the branches of the tallest trees. In a domesticated condition he retains a preference for elevated positions, and will mount to the roofs of barns and houses, or the balustrades of terraces, where he struts proudly to and fro, and expands his gorgeous tail. His scream is very discordant; and the fable-writers have turned to much advantage this one defect of the resplendent-plumaged bird. He is polygamous; and in early spring takes a pleasure in exhibiting his gorgeousness to the members of his harem, evidently not unconscious of the beauty of his attire. His vanity, says a popular French writer, knows no bounds: the adulation of his females is not

sufficient for him; he seeks the praises of man also, and is seldom unwilling to display before him all the wonders of his colouring. A skilful professor of the art of pleasing, he knows how to manage the effects of light and shade so as to exhibit himself to the greatest advantage; and when he thinks he has received his meed of admiration, his self-satisfied gait is a thing to see and laugh at! At the end of August he loses his feathered glories; nor do they reappear until spring. During the interval of comparative shabbiness, it is pretended that his shame and mortification induce him to shun the haunts of man; but the truth is, that he suffers physically, like

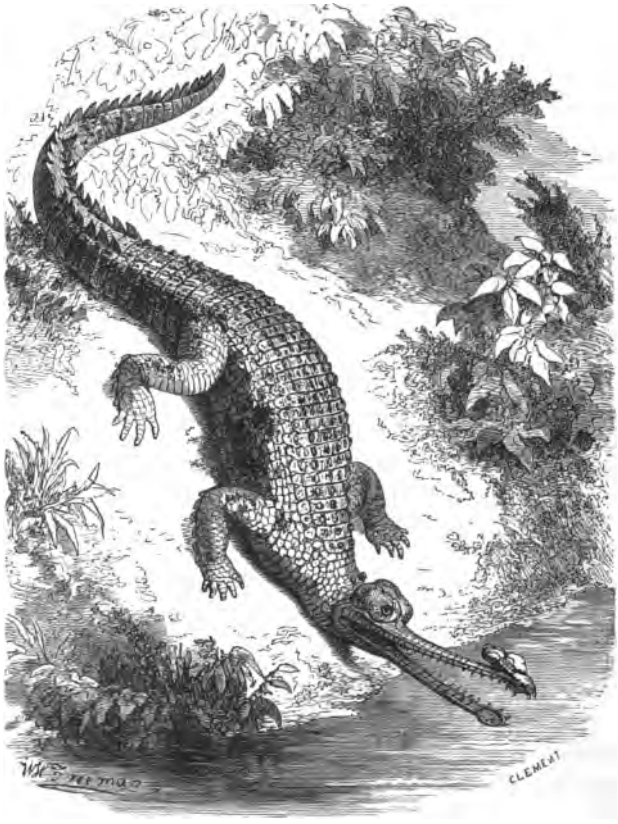
other birds, during the moulting season, and instinctively seeks retirement and tranquillity.

THE REPTILES OF INDIA.

From the Birds we pass to the Reptiles of India; foremost among which we may place the Gavial, or Crocodile of the Ganges.

This creature is distinguished from the American alligator and African crocodile by its long, narrow, and cylindrical muzzle. Its teeth are almost identical, in number and shape, in each jaw; the first and second and the fourth of the lower jaw passing into notches or indentations in the upper. It is supposed to be the largest of existing saurians, its average length varying from seventeen to eighteen feet; while it approximates to the fossil types more nearly than does any other species. It is less ferocious in its habits than the alligator, and seldom attacks man. But it has no hesitation in encountering the tiger; and when the latter comes down to the river-side to drink, the former, concealed under water, silently steals along the slimy bottom, and suddenly putting forth its long and narrow head, makes a furious attack upon the tiger, which it generally succeeds in dragging into the stream and leisurely devouring. Sometimes, however, the tiger blinds it, and effects his escape.

The Marsh-crocodiles are numerous in Ceylon, and in times of drought, when the streams run dry, may be seen dragging their ungainly forms through the jungle-growth, in weary quest of water. Or they will bury themselves deep in the sand, and lie in a state of torpidity, until



GAVIAL.

aroused by the return of the rains. Sir Emerson Tennent informs us that, while riding across the dried-up bed of a tank, the burrow was shown him, still retaining the shape and impress of a crocodile, out of which the creature had

emerged on the previous day. And he was told of an English officer who, having pitched his tent in a similar locality, had been roused during the night by a shaking of the earth beneath his bed. On the following day a crocodile made its appearance from underneath the matting, and revealed the cause of the disturbance.

The crocodile, when alarmed by an enemy, endeavours to save himself by feigning death. The writer already quoted is responsible for the following anecdote:—

He and his attendants, on one occasion, discovered a crocodile asleep at some considerable distance from the water. Great was the terror of the poor wretch, on awaking, to find himself surrounded by a ring of foes! He was a hideous creature, upwards of ten feet long, and evidently of immense strength; but he was in no condition to make use of it, being completely paralyzed by alarm. Starting to his feet, he wheeled round and round, hissing violently, and clacking his bony jaws, with his ugly green eye intently fixed upon his tormentors. On being struck, he lay perfectly still, to all appearance dead. Presently he cast a cunning glance around, then made a second rush towards the water; but on receiving a second blow, he again lay motionless, and feigned death. "We tried to rouse him," says Sir Emerson, "but without effect; pulled his tail, slapped his back, struck his hard scales, and teased him in every way, but all in vain: nothing would induce him to move, till, accidentally, my son, a boy of twelve years old, tickled him gently under the arm, and in an instant he drew it close to his side, and turned, to avoid a repetition of the experiment. Again he was touched under the

other arm, and the same emotion was exhibited, the great monster twisting about like an infant to avoid being tickled."

The Serpent tribe has numerous representatives in India, some of them of large size, and formidable either from their great strength or from the deadly nature of their venom.

Among the former may be named the Python reticulatus, which attains, it is said, the length of thirty feet, and the body of which is covered with a variegated skin of black and golden yellow. Such is its muscular power, that it can conquer and crush even a full-grown buffalo; and, in some circumstances, man himself has fallen a victim to it. A Malay prahu anchored one night in the shelter of an Indian island. One of the crew went ashore in search of betel nut, and on his return to the beach is supposed to have fallen asleep. At midnight his comrades were aroused by his screams. They jumped into their boat and rowed ashore, but were too late to render him any assistance. They found his dead body lying crushed in the coils of one of these tremendous pythons. After killing the hideous reptile, they examined their companion's corpse, and found on the right wrist the marks of the serpent's teeth, while the broken limbs showed how the unfortunate man had been crushed by its constrictive folds.

Sea-snakes are so plentiful in the Indian Seas that some of them are captured with every haul of the fishing-net. They are perfectly helpless, and apparently blind, when out of the water, and the fishermen seize them by the nape of the neck and fling them back into the sea. The nostrils

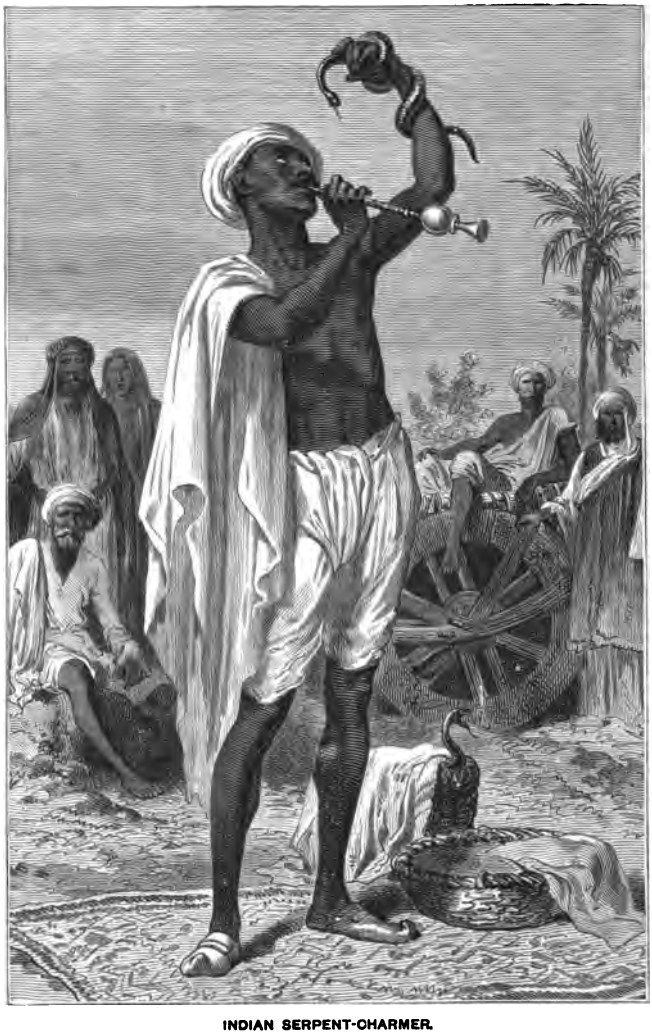
are placed on the top of the snout, and thus they can readily breathe by raising only a very small portion of the head out of the water. The poison of their fangs is exceedingly virulent; but they are only dangerous when touched or trampled on inadvertently.

The Cobras belong to the Asiatic serpents. In India is found the much-dreaded Cobra di capello,—so called from the curious dilatable disk or "hood" on the nape, which, when the animal is irritated, it expands like a crest. The Indian species has a mark like a pair of spectacles on the hood; hence it is also known as the Spectacle-snake.

It grows to a length of about five or five and a half feet, and its poison is very virulent. Still, unless incensed, it is perfectly inoffensive, and many of the stories told about it are pure inventions. This, indeed, may be said of most stories concerning serpents, which are by no means so dangerous as popular writers have chosen to represent. The cobra lives almost entirely upon rats and toads, though it does not object to an occasional young chicken, but it certainly never attacks man.

Though the cobra does not attack man, it will, of course, use its fangs in self-defence; and its poison is of a very subtle character. When in repose, its neck is no larger in diameter than its head; but when enraged, the neck swells, while the animal raises the front part of its body erect, holding it as straight and rigid as an iron bar.

The snake-charmer of India uses the cobra, as he does the cerastes, in his ingenious and surprising feats. His action is described as follows:—



INDIAN SERPENT-CHARMER.

He takes in his hand a root, the latent virtue of which is supposed to be a preservative against any evil effects from the cobra's bite. Drawing the reptile from the basket in which it is kept confined, he rouses its passions by presenting a stick to it: the creature immediately raises the fore-part of its body, expands its neck, opens its jaws, and extends its forked tongue; its eyes begin to blaze, and it hisses violently. Then a kind of struggle or contention ensues between the serpent and the charmer; the latter, striking up a low monotonous chant, opposes his closed fist to the reptile, sometimes his right, and sometimes his left. The animal fixes its eyes upon the threatening hand, follows its various movements, and balancing its head and body, simulates a kind of dance.

Other charmers appear to influence the cobra in the performance of a cadenced motion of the neck by playing on a small flute, or some other rude musical instrument.

Again: it is asserted that these accomplished jugglers are able, by means of some sympathetic action, to reduce their enemies to a condition of torpidity and lethargy, and, at will, to awaken them again into life and movement. It is certain, at all events, that they handle them with the utmost impunity. Authorities entitled to the highest respect, however, declare that, on examining the serpents used by these men, they have invariably found them deprived of their poison-fangs.

Of the leaf-green arboreal viperine snakes, called Trimeresuri, so numerous in the wooded districts of India, and of Tropical Asia generally, Dr. Gunther states some inter-

esting particulars. Slow and lethargic, they make no attempt to move out of the stranger's way; and as, owing to their colouring, they very closely resemble the branch on which they take their repose, frequently they are not perceived until they prepare to dart, vibrating the tail, and uttering a faint low hiss,—or, indeed, until they have wounded the unwary intruder. Accidents caused by these snakes are, therefore, of frequent occurrence; and it may be regarded as a fortunate circumstance that the consequences of their bite are less to be dreaded than that of various other poisonous snakes. When roused, they are extremely fierce, striking at any and every object within their reach; in their excess of rage they will fix their fangs even in their own bodies. They live upon birds, frogs, and small mammals.